O-4 / General Demographics of Workforce, Mixed Category

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WORKFORCE 2000

WORK AND WORKERS FOR THE 21ST CENTURY

BY WILLIAM B. JOHNSTON

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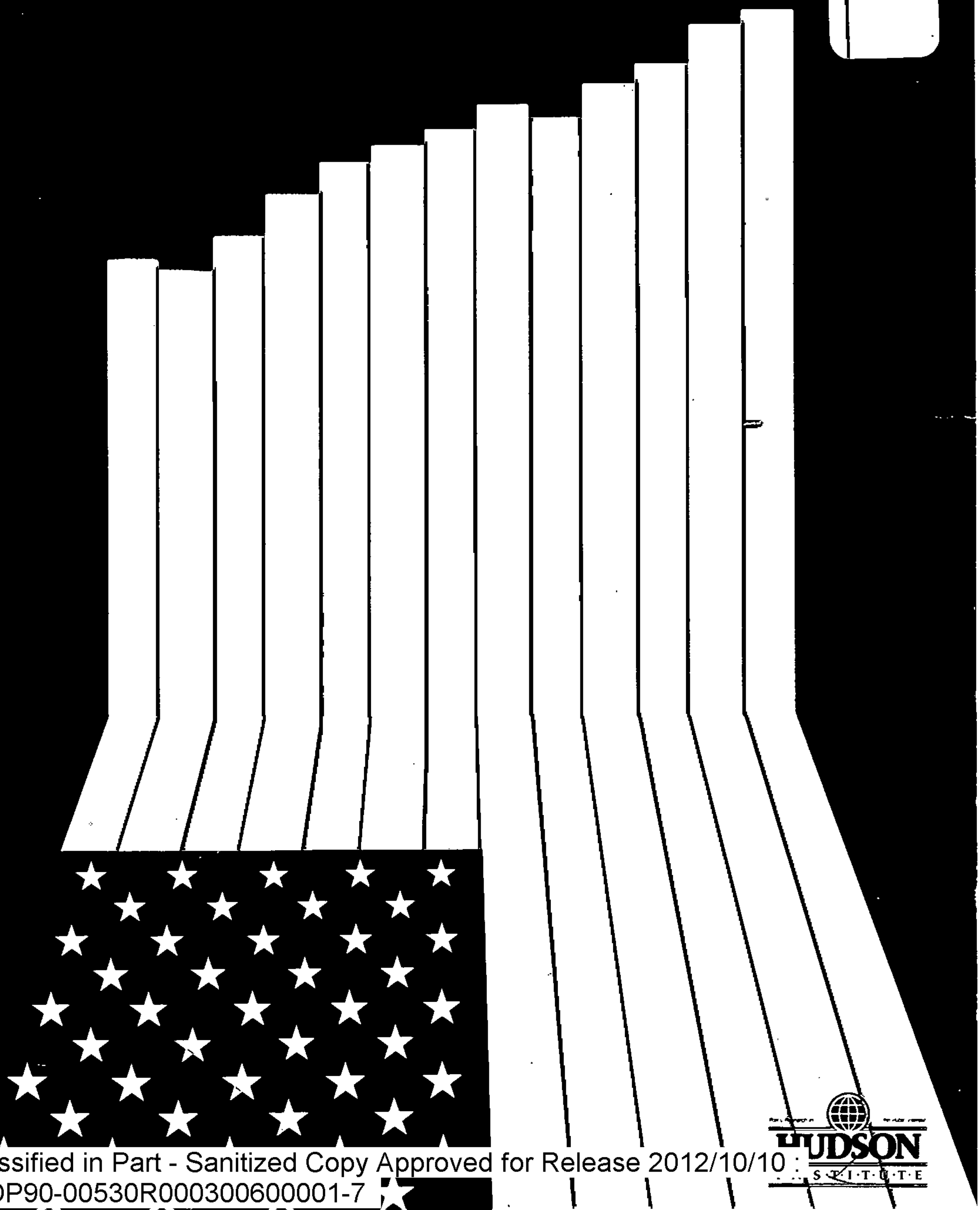
EXECUTIVE SUMMARY



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WORKFORCE 2000 EXECUTIVE SUMMARY

The year 2000 will mark the end of what has been called the American century. Since 1900, the United States has become wealthy and powerful by exploiting the rapid changes taking place in technology, world trade, and the international political order. The last years of this century are certain to bring new developments in technology, international competition, demography, and other factors that will alter the nation's economic and social landscape. By the end of the next decade, the changes under way will produce an America that is in some ways unrecognizable from the one that existed only a few years ago.

Four key trends will shape the the last years of the twentieth century:

- *The American economy should grow at relatively healthy pace,* boosted by a rebound in U.S. exports, renewed productivity growth, and a strong world economy.
- Despite its international comeback, *U.S. manufacturing will be a much smaller share of the economy in the year 2000* than it is today. Service industries will create all of the new jobs, and most of the new wealth, over the next 13 years.
- *The workforce will grow slowly, becoming older, more female, and more disadvantaged.* Only 15 percent of the new entrants to the labor force over the next 13 years will be native white males, compared to 47 percent in that category today.
- *The new jobs in service industries will demand much higher skill levels* than the jobs of today. Very few new jobs will be created for those who cannot read, follow directions, and use mathematics. Ironically, the demographic trends in the workforce, coupled with the higher skill requirements of the economy, will lead to both higher and lower unemployment: more joblessness among the least-skilled and less among the most educationally advantaged.

These trends raise a number of important policy issues. If the United States is to continue to prosper—if the year 2000 is to mark the end of the *first* American century—policymakers must find ways to:

- *Stimulate Balanced World Growth*: To grow rapidly, the U.S. must pay less attention to its share of world trade and more to the growth of the economies of the other nations of the world, including those nations in Europe, Latin America, and Asia with whom the U.S. competes.
- *Accelerate Productivity Increases in Service Industries*: Prosperity will depend much more on how fast output per worker increases in health care, education, retailing, government, and other services than on gains in manufacturing.
- *Maintain the Dynamism of an Aging Workforce:* As the average age of American workers climbs toward 40, the nation must insure that its workforce and its institutions do not lose their adaptability and willingness to learn.
- *Reconcile the Conflicting Needs of Women, Work, and Families:* Three-fifths of all women over age 16 will be at work in the year 2000. Yet most current policies and institutions covering pay, fringe benefits, time away from work, pensions, welfare, and other issues were designed for a society in which men worked and women stayed home.
- *Integrate Black and Hispanic Workers Fully into the Economy:* The shrinking numbers of young people, the rapid pace of industrial change, and the ever-rising skill requirements of the emerging economy make the task of fully utilizing minority workers particularly urgent between now and 2000. Both cultural changes and education and training investments will be needed to create real equal employment opportunity.
- *Improve the Educational Preparation of All Workers:* As the economy grows more complex and more dependent on human capital, the standards set by the American education system must be raised.

The U.S. Economy in the Year 2000

Because long-range forecasts are so uncertain, alternative scenarios are useful to help to bracket a range of possible outcomes. The three scenarios presented here are based not only on different rates of economic growth, but on different policy choices.

The baseline or "surprise-free" scenario reflects a modest improvement in the rate of growth that the nation experienced between 1970 and 1985. But despite improved trends in inflation and productivity, the U.S. economy does not return to the boom times of the

1950s and 1960s. Slow labor force growth is only partly offset by faster productivity gains, and imperfect coordination between the world's governments leads to only moderate rates of world growth. Economic turbulence causes periodic recessions in the U.S. that hold total growth to just under three percent per year.

In contrast, "world deflation" focuses on the possibility that a worldwide glut of labor and production capacity in food, minerals, and manufactured products could lead to a sustained price deflation and sluggish economic growth. World governments, chastened by a decade and a half of inflation, are slow to recognize the new economic realities and unwilling to undertake coordinated efforts to respond to them. The U.S., whose huge trade deficit has been the world's growth engine during the early 1980s, moves toward balance in its trade and fiscal accounts. Without U.S. stimulus, the rest of the world slides into a series of recessions that lead to increased protectionism and beggar-thy-neighbor trade, monetary, and fiscal policies that hold growth to only 1.6 percent per year over the period.

The third scenario, the "technology boom," outlines a powerful rebound in U.S. economic growth to levels that compare with the first two decades following World War II. Coordinated international monetary, fiscal, and trade policies succeed in smoothing world business cycles. Renewed public and private lending to developing nations and low oil prices trigger rapid growth in much of the Third World. In the U.S., high rates of investment in both physical and human capital, coupled with rapid productivity growth in services, low inflation, low resource prices, lower taxes, and less government intervention combine to produce a boom in productivity that causes the U.S. economy to surge ahead by 4 percent per year.

Table 1 summarizes the major assumptions and outcomes of the three scenarios. The table underscores several key points about the U.S. economy over the next 13 years:

- *U.S. Growth and World Growth are Tightly Linked:* The strong historical correlation between world growth and U.S. growth continues through the balance of the century. In the baseline forecast, the U.S. grows at about 2.9 percent, compared to 3.1 percent for the world.

Table 1
THE U.S. ECONOMY IN THE YEAR 2000

	1985	2000 (Three Scenarios)					
	Level	BASE		LOW		HIGH	
		Level	Change*	Level	Change*	Level	Change*
World GDP (bill. 82$)	7745	12204	3.1%	9546	1.4%	13057	3.5%
U.S. GNP (bill. 82$)	3570	5463	2.9%	4537	1.6%	6431	4.0%
GNP Deflator (1982-100)	111.7	182.4	3.3%	117.8	0.4%	196.4	3.8%
Employment (millions)	107.2	131.0	1.3%	122.4	0.9%	139.9	1.8%
Manufacturing	19.3	17.2	-0.8%	18.0	-0.4%	18.1	-0.4%
Commercial & Other Services	62.0	84.3	2.1%	76.5	1.4%	88.7	2.4%
Productivity (output/worker,82$)	33.3	41.7	1.5%	37.1	0.7%	46.0	2.2%
Manufacturing	40.4	71.4	3.9%	58.0	2.5%	81.3	4.8%
Commercial & Other Services	29.9	34.1	0.9%	30.4	0.1%	38.2	1.6%
Fed. Surplus (bill. curr.$)	-200.8	-110.0	—	-170.1	—	-40.7	—
Curr. Acct. Bal. (bill. curr.$)	-116.8	14.0	—	12.5	—	32.6	—
Disp. Income Per Capita (thou. 82$)	10.5	13.5	1.7%	11.5	0.6%	15.6	2.7%

*Average Annual Gain
Source: Hudson Institute.

• *U.S. Manufacturing Employment Declines While Services Grow:* Despite strong export growth and substantial production increases, manufacturing jobs decline in all scenarios. Whether the U.S. and world economies are booming in an open trading environment or growing slowly in an atmosphere of protectionism and nationalistic trading patterns, U.S. manufacturing jobs decrease. No pattern of growth enables manufacturing employment to return to the peak of 1979.

In addition to the decline in employment, manufacturing will decline as a share of GNP, measured in current dollars. Where manufacturing produced some 30 percent of all goods and services in 1955, and 21 percent in 1985, its share will drop to less than 17 percent by 2000.

The shift to services will bring with it broad changes in the location, hours, and structure of work. Service jobs tend to be located where and when the customer wants them, rather than centralized as are manufacturing jobs. Partly as a result, the typical workplace in the future will have fewer people, and the average workweek will become shorter with more people employed part-time.

The shift to services will also have great impacts on the economy and its employees. For example, the business cycle should moderate, since service industry growth is less volatile than manufacturing. Wages may become less equally distributed, since service jobs tend have more high and low earners, and fewer in the middle. Economic growth may be harder to achieve, because productivity gains are lower in most service industries.

Most importantly, the shift to services means that efforts to preserve or develop the nation's manufacturing base are swimming upstream against a powerful tide. Productivity gains, not Japanese competition, will gradually eliminate manufacturing jobs. Lower prices (relative to services) will gradually shrink manufacturing's share of the economy. Just as agriculture lost its central role in the American economy at the beginning of the century, so will manufacturing lose economic importance as the century draws to a close. Those who fail to recognize these inevitable trends—for example, states that try to capture new factories to boost their local economies or the Congress, which is threatening to legislate trade barriers to hang on to U.S. manufacturing jobs—will miss the most important opportunities of the future.

• *The Key to Domestic Economic Growth is a Rebound in Productivity, Particularly in Services:* Throughout the 1970s and early 1980s, the United States managed to sustain a rising standard of living by increasing the number of people at work and by borrowing from abroad and from the future. These props under the nation's consumption will reach their limits before the end of the century: there will be relatively fewer young people and homemakers who will enter the workforce during the 1990s, and the burden of consumer, government, and international debt cannot be expanded indefinitely. If the U.S. economy is to grow at its historic 3 percent per year average, the nation must substantially increase its productivity.

Output per worker during the 1990s is projected to double, from 0.7 percent per year to 1.5 percent, the same rate as the 1960s. A combination of older, more stable, and better-educated workers, and higher rates of investment will support this improvement. Better productivity performance by the service industries will be particularly important. Output per worker in manufacturing continues to show strong gains, but the most important productivity improvements come in services, where output per worker climbs from -0.2 percent over the last 15 years to +0.9 percent per year from 1985 to 2000. The keys to such advances will be more competition in traditionally noncompetitive industries such as education, health care, and government services, coupled with the application of advanced technologies to deliver more automated business, government, and personal services.

- *U.S. Trade Accounts Move Toward Balance:* Although the different scenarios show widely dispersed rates of growth of imports and exports, the U.S. current account balance improves under all conditions. This is due both to the devaluation of the dollar that has already taken place against other currencies and to improving productivity in manufacturing industries. Under the baseline scenario, by the year 2000 the U.S. current account balance is in the black by some $14 billion.

- *The U.S. Budget Deficit Declines:* Along with the improvement in the trade deficit comes a decline in the budget deficit. Even without any major tax increases, growth in GNP and a large surplus in the Social Security Trust Fund cut the federal budget deficit to $18 billion by 1995.

- *Inflation Moderates:* Under the baseline scenario, prices increase by an average of 3.3 percent per year over the 1985–2000 period. The excess world capacity in labor, goods, and services prevents inflation from resuming its pace of the 1970s.

- *Unemployment Remains Stubbornly High:* The baseline scenario forecasts unemployment at just over 7 percent in the year 2000, despite the relatively slow growth of the labor force projected over the period. In the deflation scenario, unemployment climbs above 9 percent, while even in the boom scenario unemployment is reduced only to 5.9 percent.
- *Disposable Income Increases Moderately:* Disposable personal income per person, the best single measure of how rapidly society is improving its standard of living, grows by 1.7 percent per year under the baseline scenario, almost precisely the rate at which it grew between 1970 and 1985.

Workers and Jobs in the Year 2000

Changes in the economy will be matched by changes in the workforce and the jobs it will perform. Five demographic facts will be most important:

- *The population and the workforce will grow more slowly than at any time since the 1930s:* Population growth, which was climbing at almost 1.9 percent per year in the 1950s, will slump to only 0.7 percent per year by 2000; the labor force, which exploded by 2.9 percent per year in the 1970s, will be expanding by only 1 percent annually in the 1990s. These slow growth rates will tend to slow down the nation's economic expansion and will shift the economy more toward income-sensitive products and services (e.g., luxury goods and convenience services). It may also tighten labor markets and force employers to use more capital-intensive production systems.
- *The average age of the population and the workforce will rise, and the pool of young workers entering the labor market will shrink:* As the baby boom ages, and the baby bust enters the workforce, the average age of the workforce will climb from 36 today to 39 by the year 2000. The number of young workers age 16–24 will drop by almost 2 million, or 8 percent. This decline in young people in the labor force will have both positive and negative impacts. On the one hand, the older workforce will be more experienced, stable, and reliable. The reverse side of this stability will be a lower level of adaptability. Older workers, for example, are less likely to move, to change occupations, or to undertake retraining than younger

ones. Companies that have grown by adding large numbers of flexible, lower-paid young workers will find such workers in short supply in the 1990s.

- *More women will enter the workforce:* Almost two-thirds of the new entrants into the workforce between now and the year 2000 will be women, and 61 percent of all women of working age are expected to have jobs by the year 2000. Women will still be concentrated in jobs that pay less than men's jobs, but they will be rapidly entering many higher-paying professional and technical fields. In response to the continued feminization of work, the convenience industries will boom, with "instant" products and "delivered-to-the-door" service becoming common throughout the economy. Demands for day care and for more time off from work for pregnancy leave and child-rearing duties will certainly increase, as will interest in part-time, flexible, and stay-at-home jobs.

- *Minorities will be a larger share of new entrants into the labor force:* Non-whites will make up 29 percent of the new entrants into the labor force between now and the year 2000, twice their current share of the workforce. Although this large share of a more slowly growing workforce might be expected to improve the opportunities for these workers, the concentration of blacks in declining central cities and slowly growing occupations makes this sanguine outlook doubtful.

- *Immigrants will represent the largest share of the increase in the population and the workforce since the first World War:* Even with the new immigration law, approximately 600,000 legal and illegal immigrants are projected to enter the United States annually throughout the balance of the century. Two-thirds or more of immigrants of working age are likely to join the labor force. In the South and West where these workers are concentrated, they are likely to reshape local economies dramatically, promoting faster economic growth and labor surpluses.

In combination, these demographic changes will mean that the new workers entering the workforce between now and the year 2000 will be much different from those who people it today. Non-whites, women, and immigrants will make up more than five-sixths of the net additions to the workforce between now and the year 2000, though they make up only about half of it today:

	1985 Labor Force	Net New Workers, 1985–2000
Total	115,461,000	25,000,000
Native White Men	47%	15%
Native White Women	36%	42%
Native Non-white Men	5%	7%
Native Non-white Women	5%	13%
Immigrant Men	4%	13%
Immigrant Women	3%	9%

Source: Hudson Institute.

Juxtaposed with these changes in the composition of the workforce will be rapid changes in the nature of the job market. The fastest-growing jobs will be in professional, technical, and sales fields requiring the highest education and skill levels. Of the fastest-growing job categories, all but one, service occupations, require more than the median level of education for all jobs. Of those growing more slowly than average, not one requires more than the median education.

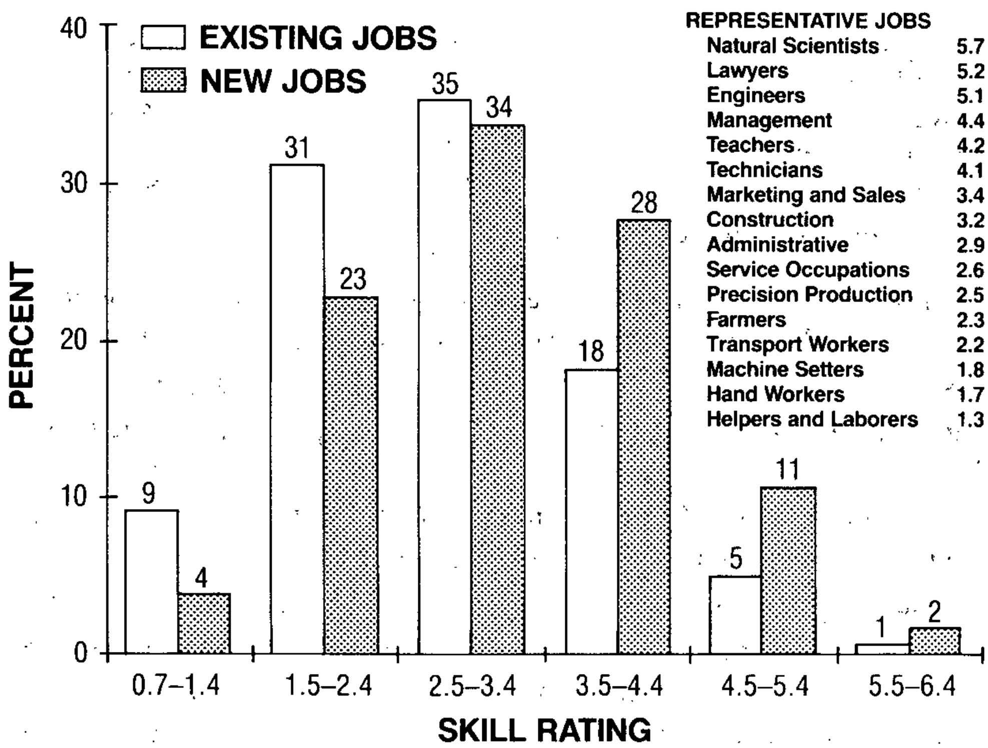
Ranking jobs according to skills, rather than education, illustrates the rising requirements even more dramatically. When jobs are given numerical ratings according to the math, language, and reasoning skills they require, only twenty-seven percent of all new jobs fall into the lowest two skill categories, while 40 percent of current jobs require these limited skills. By contrast, 41 percent of new jobs are in the three highest skill groups, compared to only 24 percent of current jobs (see Figure 1).The changes ahead in the job market will affect different groups in the society in different ways. While young whites may find their jobs prospects improving, for black men and Hispanics the job market will be particularly difficult (see Figure 2). In contrast to their rising share of the new entrants into the labor force, black men will hold a declining fraction of all jobs if they simply retain existing shares of various occupations. Black women, on the other hand, will hold a rising fraction of all jobs, but this increase will be less than needed to offset their growing share of the workforce.

Six Policy Challenges

These trends in the emerging economy suggest six policy issues that deserve the greatest attention:

Stimulating World Growth: For more than a decade, American policymakers have been concerned with the U.S. balance of trade, the nation's deteriorating ability to compete with other nations, and the

Figure 1
LOW SKILLED JOBS ARE DECLINING



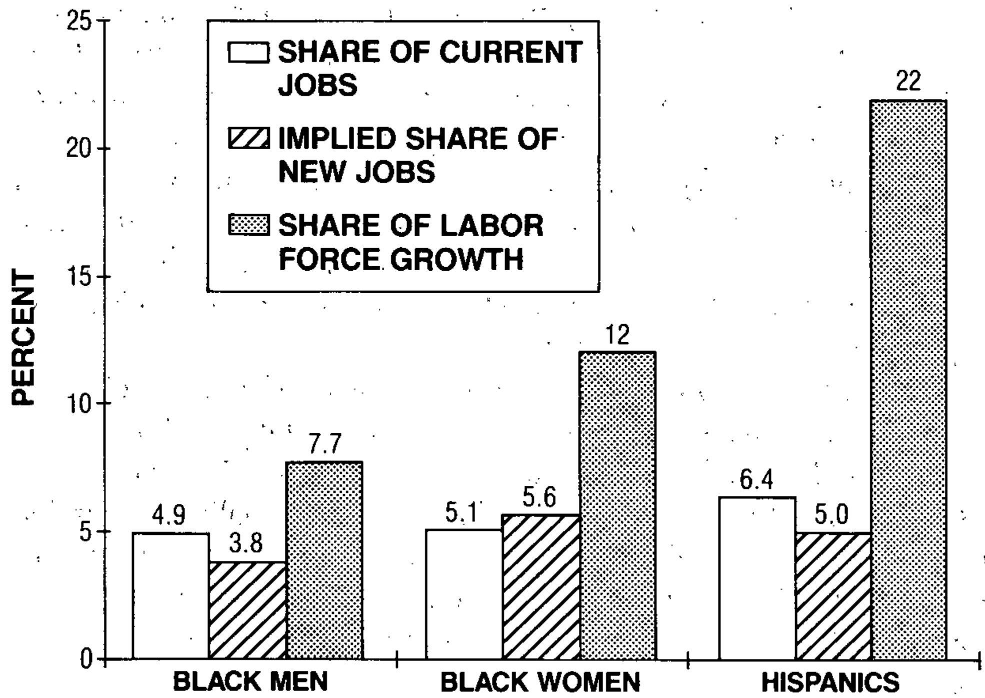
Source: Hudson Institute.

presumed unfairness of the trading policies of other countries. These issues, while important, are not the most critical international concerns facing the nation. U.S. prosperity between now and the end of the century will depend primarily on how fast the world economy grows and on how rapidly domestic productivity increases. It will depend very little on how open or closed the Japanese market is to American goods, or even on how soon U.S. trade accounts return to balance.

In particular, it is important for the United States, along with other industrial countries, to find ways to restimulate growth in the developing world. These nations that are still on the threshold of industrialization have the greatest opportunities for rapid growth that can stimulate the world and U.S. economies.

At the same time, efforts to improve U.S. competitiveness must always be undertaken within the context of strengthening the world economy. The envy and anger that many in the United States feel toward Japan's success should not blind policymakers to the reality

Figure 2
BLACK MEN AND HISPANICS FACE THE GREATEST DIFFICULTIES IN THE EMERGING JOB MARKET



that as Japan (and every other nation of the world) grows richer, the United States will benefit. Just as it is easier for a company to prosper in a rapidly-growing market than to capture market share in a shrinking one, so it will be easier for the United States to prosper in rapidly-growing world markets than in static or shrinking ones.

Of course, the U.S. *share* of world growth is also important. But most of the steps that must be taken taken to improve U.S. competitiveness have little to do with changing the behavior of the Japanese or the Koreans. Instead, they involve changes in the propensity of Americans to borrow and spend rather than to save, major improvements in the educational preparation of large numbers of prospective workers, and reforms in the practices and laws that encourage America's best and brightest to provide legal advice in corporate takeovers rather than to build companies that exploit new technologies.

Improving Productivity in Service Industries: Manufacturing still controls the imagination, the statistics, and the policies of the nation, even though it now represents a small and shrinking fraction of national employment and output. The nation's mental image of progress continues to be one in which manufacturing plants produce more cars, computers, and carpets per hour. But services are a far larger segment of the economy and the sector whose productivity has actually declined in recent years. These industries—health, education, trade, finance, insurance, real estate, and government—must be the targets of government efforts to improve productivity.

To realize this objective, new efforts must be made to tear down the barriers to competition in many of the service industries where competition does not now exist. At the same time, new investments must be made in research and development targeted toward improving service industry productivity.

In education, for example, competition is needed at the elementary and secondary school level, where the monopoly position of the public schools has stifled innovation. In order to provide a benchmark for measuring gains, national standards and nationally comparable tests are essential. At the same time, new investments are needed in educational technology, in particular to develop a large base of public domain software to teach math, reading, science, and more advanced courses.

In health care, the steps taken to inject competition into the system must be extended, while new investments are made in productivity-enhancing technologies such as automated diagnostics. In a range of other government services, privatization and competition promise to provide great productivity gains.

Improving the Dynamism of an Aging Workforce: At the same time that the workforce is aging and becoming less willing to relocate, retrain, or change occupations, the economy is demanding more flexibility and dynamism. Despite general recognition of the importance of a flexible workforce, many national policies fail to promote this end.

For example, the nation's pension system is one in which most retirement benefits are tied to the job. In many cases, employees receive no benefits if they leave after a few years, and, by the time they reach mid-career, they would suffer major benefit losses if they switched employers. The current system tends to inhibit workers from changing jobs and to discourage companies from hiring older workers.

Similarly, the unemployment insurance system has been largely used to provide income support to workers who are laid off. Relatively little has been done to make the system one that promotes relocation, retraining, and job search.

Although worker retraining has become a catchphrase, and the federal government and private industry now spend billions of dollars for retraining, there is still no national consensus that all workers should expect to learn new skills over the course of their worklives. Except in a few companies, training is confined mostly to the top and bottom ranks of employees, with little systematic effort to insure that all workers are constantly reinvesting in themselves to avoid obsolescence. National policies that promote such corporate and individual attitudes toward retraining should be backed up with changes in the tax code to encourage lifelong education.

Finally, the goal of promoting dynamism requires reconsideration of national policies on immigration. The most careful studies of legal immigrants have concluded that they are a valuable asset to the nation and help to stimulate economic growth and change. The need for more, better-educated immigrants to help staff a growing economy will increase as the growth of the population and labor force slows in the 1990s. Despite the political and social objections, the nation should begin a program of gradually increasing its quotas and opening its doors to more individuals desiring to enter the country.

Reconciling the Demands of Women, Work, and Families: America has become a society in which everyone is expected to work—including women with young children. But many of society's institutions were designed during an era of male breadwinners and female homemakers.

What is needed is a thoroughgoing reform of the institutions and policies that govern the workplace, to insure that women can participate fully in the economy, and that men and women have the time and resources needed to invest in their children. For example, some formula is needed to provide parents with more time away from work. Flexible hours, the use of sick leave to care for children, more part-time work, pregnancy leaves for mothers and fathers, and other innovations are expensive, but ultimately necessary changes in the structure of work that will accommodate the combination of work and family life. Similarly, the need for high-quality day care has not yet been fully addressed. Government and private mechanisms to provide for the care of the children of working parents need further development.

The increase in the numbers of working women also has implications for the current debate over welfare reform. The current stay-at-home welfare program was designed long before most women worked. Now that a majority of nonwelfare women with young children work, it no longer seems cruel to require welfare mothers to do so. The current system should be replaced with one that mandates work for all able-bodied mothers (except for those caring for infants), while providing training, day care, and job counseling.

Integrating Blacks and Hispanics Fully into the Workforce: For minority workers, the changes in the nation's demography and economy during the 1990s represent both a great risk and a great opportunity. With fewer new young workers entering the workforce, employers will be hungry for qualified people and more willing to offer jobs and training to those they have traditionally ignored. At the same time, however, the types of jobs being created by the economy will demand much higher levels of skill than the jobs that exist today. Minority workers are not only less likely to have had satisfactory schooling and on-the-job training, they may have language, attitude, and cultural problems that prevent them from taking advantage of the jobs that will exist.

If the policies and employment patterns of the present continue, it is likely that the demographic opportunity of the 1990s will be missed and that by the year 2000 the problems of minority unemployment, crime, and dependency will be worse than they are today. Without substantial adjustments, blacks and Hispanics will have a smaller fraction of the jobs of the year 2000 than they have today, while their share of those seeking work will have risen.

Each year of delay in seriously and successfully attacking this problem makes it more difficult. Not only will the jobs become more sophisticated and demanding, but the numbers of new workers entering the workforce will begin to increase after 1993. Now is the time to begin investing in education, training, and other assistance. These investments will be needed, not only to insure that employers have a qualified workforce in the years after 2000, but to finally deliver the equality of opportunity that has been America's great unfulfilled promise.

Improving Workers' Education and Skills: As the economies of developed nations move further into the post-industrial era, human capital plays an ever-more-important role in their progress. As the society becomes more complex, the amount of education and knowledge needed to make a productive contribution to the economy becomes greater. A century ago, a high school education was thought to be superfluous for factory workers and a college degree was the mark of an academic or a lawyer. Between now and the year 2000, for the first time in history, a majority of all new jobs will require postsecondary education.

Education and training are the primary systems by which the human capital of a nation is preserved and increased. The speed and efficiency with which these education systems transmit knowledge governs the rate at which human capital can be developed. Even more than such closely-watched indicators as the rate of investment in plant and equipment, human capital formation plays a direct role in how fast the economy can grow.

If the economy is to grow rapidly and American companies are to reassert their world leadership, the educational standards that have been established in the nation's schools must be raised dramatically. Put simply, students must go to school longer, study more, and pass more difficult tests covering more advanced subject matter. There is no excuse for vocational programs that "warehouse" students who perform poorly in academic subjects or for diplomas that register nothing more than years of school attendance. From an economic standpoint, higher standards in the schools are the equivalent of competitiveness internationally.

Promoting world growth, boosting service industry productivity, stimulating a more flexible workforce, providing for the needs of working families with children, bringing minority workers into the workforce, and raising educational standards are not the only items on the nation's agenda between now and the year 2000. But they are certainly among the most important.

More critically, they are issues that will not go away by themselves. If nothing unusual is done to focus national attention and action on these challenges, they are likely to be still unresolved at the beginning of the next century. By addressing them now, the nation's decisionmakers can help to assure that the economy and the workforce fulfil their potential to make the year 2000 the beginning of the next American century.

Policy Research in the Public Interest

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5935 Emerson Way
Indianapolis, Indiana 46226

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(Full book attached)

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Work and Workers for the Twenty-first Century

William B. Johnston
Project Director

Arnold E. Packer
Co-Project Director

With Contributions By
Matthew P. Jaffe
Marylin Chou
Philip Deluty
Maurice Ernst
Adrienne Kearney
Jane Newitt
David Reed
Ernest Schneider
John Thomas

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Herman Kahn Center
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Indianapolis, IN 46226 USA
Telephone: (317) 545-1000
Telex 855477

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CHAPTER 3
Work And Workers In The Year 2000

Who will be working in the year 2000 and what will they be doing? Which occupations will grow most rapidly? Which groups of workers will increase their presence in the workforce, and which will decline?

Many of these questions can be answered with some confidence. Everyone who will be working in the year 2000 has already been born, and two-thirds of them are at work today. Similarly, most of today's jobs will still exist in the year 2000. It is the new jobs and the new workers, however, that are of greatest interest and concern. The workers who will join the labor force between now and the year 2000 are not well-matched to the jobs that the economy is creating. A gap is emerging between the relatively low education and skills of new workers (many of whom are disadvantaged) and the advancing skill requirements of the new economy. Although this gap can certainly be bridged by education, training, automation, and other strategies, it presents a great challenge to American workers and employers. To understand the challenge, it is essential to review both detailed demographic projections and to forecast the occupational shifts ahead.

Demographics As Destiny—*WORKFORCE 2000*

Over the next 13 years, the American workforce and the economy will be shaped by five demographic "facts":

- *The population and the workforce will grow more slowly than at any time since the 1930s.*
- *The average age of the population and the workforce will rise, and the pool of young workers entering the labor market will shrink.*

- *More women will enter the workforce, though the rate of increase will taper off.*
- *Minorities will be a larger share of new entrants into the labor force.*
- *Immigrants will represent the largest share of the increase in the population and the workforce since the First World War.*

Slowly Growing Population

By the year 2000, the U.S. population will reach 275 million, an increase of 15 percent over the 240 million U.S. residents in 1985 (see Table 3-1).

This rate of gain, approximately one percent per year during the 1980s and three-fourths of one percent per year during the 1990s, is well below the average for the last two decades. By the 1990s, the U.S. population will be growing more slowly than at any time in the nation's history, with the exception of the decade of the Great Depression, when the rate was also about three-fourths of one percent per year (see Figure 3-1).

Changes in fertility, projected death rates, or immigration could have significant impacts on the size of the population over the next 15 years. For example, technological advances in birth control (a male contraceptive pill or a safe abortion-inducing drug) could sharply reduce the birth rate. Rapid advances in the treatment of cancer, or conversely, unchecked spread of the AIDS virus could alter the death rate. And changes in social values might encourage larger families among the affluent, as they did during earlier eras.

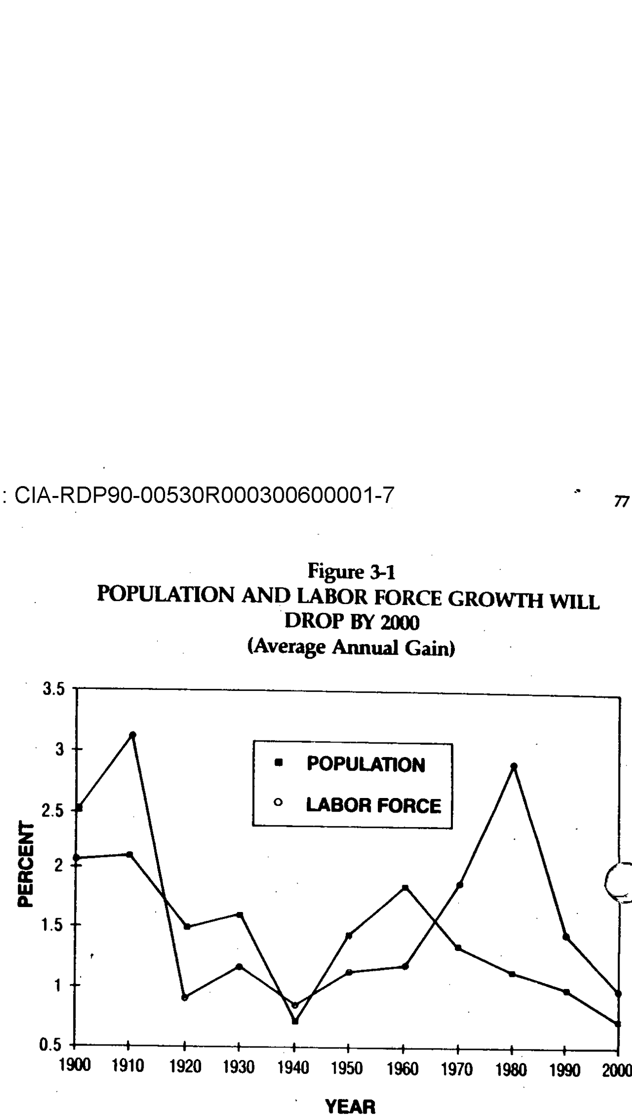
Under the most conservative assumptions (low fertility, high death rates, and low immigration), the population climbs to only about 256 million, or seven percent. With opposite assumptions, the population could reach 281 million, a gain of 18 percent.

Table 3-1
U.S. POPULATION GROWTH, 1950–2000
(millions)

	Total	Increase Compared To Previous Census
1950	151.3	19.1
1960	179.3	28.0
1970	203.2	24.0
1980	226.5	23.2
1990	252.7	26.2
2000	275.2	22.5

Source: U.S. Bureau of the Census, Decennial Censuses and Current Population Reports, Series P-25, N. 937, Table 1, Hudson Institute.

Figure 3-1
POPULATION AND LABOR FORCE GROWTH WILL DROP BY 2000
(Average Annual Gain)



Changes in immigration represent the greatest uncertainties. The U.S. Bureau of the Census assumes that immigration during the balance of the century will match the rate of legal immigration during the recent past: 450,000 per year. At this rate, immigrants and their offspring will comprise a little more than one-fourth of the U.S. population gain. If immigration adds 750,000 persons per year to the population, i.e., if the estimated rate of legal and illegal immigration over the past 15 years continues unchanged, immigrants would account for almost half of the net gain.

Slower Labor Force Growth

The slowing growth of the population will be mirrored by the reduced growth of the labor force. Between 1985 and the year 2000, the labor force will grow by about 22 percent, from 115 million to 141 million (see Table 3-2).

Table 3-2
THE LABOR FORCE IS GROWING SLOWLY

Year	Labor Force (millions)	Gain From Previous Period (millions)
1950	62.2	9.5
1960	69.6	7.4
1970	82.8	13.2
1980	106.9	24.1
1990	124.6	18.0
2000	140.5	15.6

Source: Bureau of Labor Statistics, Handbook of Labor Statistics, 1985, Table 4, and Hudson Institute.

Although the labor force gains are proportionally greater than the population gains (due to the increasing share of the population at work), the trend is the same: the labor force will be increasing at a slower rate than at any time since the 1930s (see Figure 3-1). Changes in birth and death rates could not significantly affect the size of the labor force during the balance of the century, since they would mostly affect children and old people who would not be working in any case. Immigration and changes in labor force participation, however, could have large impacts. For example, a strong economy could pull more workers into the labor market or international unrest could swell the numbers of illegal aliens seeking jobs. Conversely, a weak economy, growing desires for early retirement, renewed emphasis on child care by stay-at-home parents, or drastic border-closing legislation could all reduce the size of the labor force.

Combining the highest rates of immigration projected by the Census Bureau with the highest plausible rates of labor force participation projected by the Bureau of Labor Statistics would produce a labor force of 147 million in 2000. In contrast, the lowest projections would cause the labor force to rise to only 129 million. In other words, the workforce could increase by as little as 12 percent—the slowest rate in the country's history—or by as much as 28 percent—almost as fast as during the 1970s.

The Impacts of Slow Population and Labor Force Growth

The most likely scenario of slow population and labor force growth will affect the economy and the nation in a number of ways:

- *The national rate of economic growth will fall well below what it would be if the nation's population and workforce were increasing at the rates of the 1960s and 1970s.* Slower population growth will lead to less demand for population-sensitive products, such as food, automobiles, housing units, household goods, and educational services. Productivity gains will account for a much greater fraction of national growth than during the past two decades, when increases in population and workers helped to fuel the economy.
- *Economic growth will depend more directly on increased demand for income-sensitive products such as restaurant meals, luxury goods, travel, tourism, and health care.* Companies will focus more on capturing a larger share of disposable income, rather than on serving a greater share of households. As a result, services and luxury goods sectors of the economy will grow faster than population-dependent goods sectors.
- *Labor markets will be tighter, due to the slower growth of the workforce and the smaller reservoir of well-qualified workers.* While recessions may still lead to high unemployment, and undereducated workers may still suffer great difficulties in the labor market, fewer well-educated workers will be available than during the 1960s and 1970s, and employers may bid up their price.

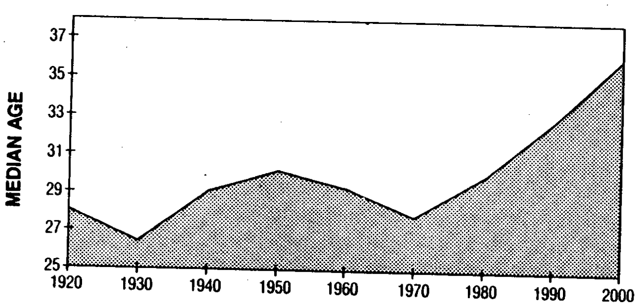
An Aging Population and Workforce, and Fewer Young Workers

The aging of the baby boom generation (those born between 1946 and 1961) will cause the American population to become much older, on average, throughout the balance of the century. The median age of the population, which had been declining until 1970, will reach 36 by the year 2000, six years older than at any time in the history of the nation (see Figure 3-2).

Most of this aging will be the result of huge increases in the numbers of middle-aged Americans. Between 1986 and 2000, for example, the number of people between the ages 35–47 will jump by 38 percent, and the numbers age 48–53 will leap by a staggering 67 percent, compared with overall population growth of only 15 percent.

On the other hand, the population over age 65, which is sometimes assumed to be growing rapidly as part of the national aging trend, will actually grow more slowly for the balance of the

Figure 3-2
THE U.S. POPULATION IS GROWING OLDER
(Median Age)



Source: U.S. Bureau of the Census, "Current Population Reports," Series P-23, No. 138, Table 2-9

century than it has in recent years (see Table 3-3). Maturing, rather than aging, may be the best description for the population trends of the next decade and a half.

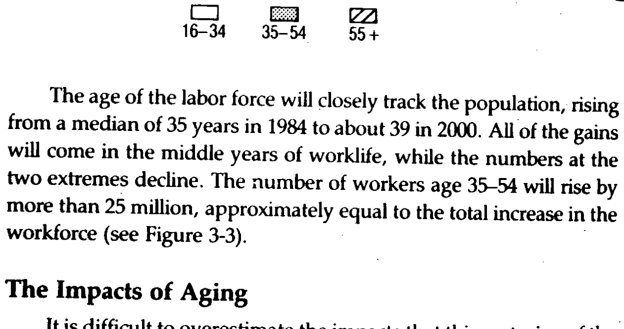
The number of young people will decline both relatively and absolutely. The numbers between age 20 and 29, for example, will shrink from 41 million in 1980 to 34 million in 2000, and their share of the population will drop from 18 to 13 percent.

Table 3-3
THE POPULATION OVER AGE 65 WILL
GROW MORE SLOWLY, 1985–2000
(thousands, except percent)

	Total Over 65	Increase	Percent Increase
1950	12,397	X	X
1960	16,675	4,278	34.5
1970	20,087	3,412	20.5
1980	25,708	5,621	28.0
1990	31,680	5,972	23.2
2000	35,410	3,730	11.8

Source: U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 138, Table 2-1, Hudson Institute.

Figure 3-3
THE MIDDLE AGING OF THE WORKFORCE



The age of the labor force will closely track the population, rising from a median of 35 years in 1984 to about 39 in 2000. All of the gains will come in the middle years of worklife, while the numbers at the two extremes decline. The number of workers age 35–54 will rise by more than 25 million, approximately equal to the total increase in the workforce (see Figure 3-3).

The Impacts of Aging

It is difficult to overestimate the impacts that this maturing of the population and the workforce will have on the society and the economy. While most commentary has focused on the benefits of an older workforce, the changes ahead will be both positive and negative, and the balance may be decidedly unfavorable. On the positive side:

- *A more experienced, stable, reliable, and generally healthy workforce should improve productivity.* The initial task of educating and training the huge baby boom generation has been largely accomplished; the investment in these workers should provide dividends to the economy over the next 13 years.

- *The economic dependency ratio (the proportion of the population not in the labor force compared to those in the labor force) will continue to drop.* This rough measure of the burden on the economy has been shrinking since the 1960s, with most of the reduction coming from the declining numbers of dependent children and nonworking wives. In 1965, for example, there were more than 1.5 dependents for each working person. By 1984, the ratio had dropped to 1.05 to one; in the year 2000, there will be less than one dependent per worker. Although this may enhance the nation's sense of well-being during the 1990s, it could lead to a false sense of security. Because the dependency ratio will turn around sharply when the baby boom retires after the turn of the century, the low numbers of dependents in the years to 2000 may postpone difficult political debates on issues such as Social Security funding. The healthy, working, middle-aged society of the 1990s may be reluctant to address the long-range costs of the retirement boom that will begin about 2010.

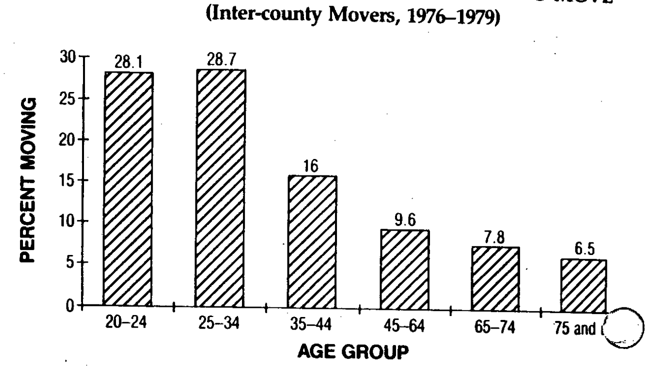
- *The national savings rate may rise, as the baby boomers reach middle age.* Younger people, who buy first houses, cars, and other consumer durables generally borrow more money than they save. Among those under age 35, net borrowing equals about 9 percent of income; between 35 and 44, families save about 3 percent of their incomes, while saving for those over 44 climbs to about 11 percent of their incomes. With the huge increase in the number of workers over age 40, higher national savings may lead to lower real interest rates, stimulating investment and improving productivity. In addition, the constituency opposing inflation may increase dramatically, as a much larger share of the population owns financial assets. Willingness to tolerate budget deficits or rapid monetary growth may decline. At the same time, tolerance for high unemployment as the price of a stable currency may increase.
- *Labor markets for younger workers could tighten.* Companies accustomed to hiring young workers at cheap wages may find that they must raise wages, reach further down the labor queue, invest in labor-saving technology, or all three, in order to prosper. Food service may be particularly affected.

On the other hand, the aging of the workforce may have some very negative consequences for the economy and the society:

- *The aging workforce may increase the rigidity of the economy.* An older, more stable workforce may adapt poorly to a rapidly-changing economy. For example, older people are much less likely to move than younger ones (see Figure 3-4). As the baby boomers reach the middle years of mortgages and children in school, their willingness to pull up stakes in response to new opportunities or changing conditions will decline. Similarly, the proportion of individuals who are

Figure 3-4

YOUNG PEOPLE ARE MUCH MORE LIKELY TO MOVE
(Inter-county Movers, 1976–1979)

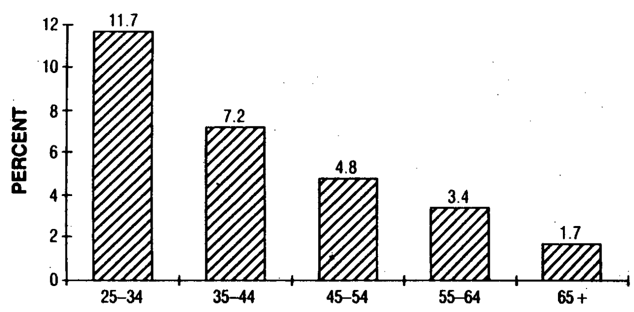


Source: U.S. Bureau of the Census, "Current Population Reports," Series P-23, No. 138, Table 4-6

willing to be retrained or who move between occupations declines steadily with age. For example, workers over age 45 were less than half as likely to change occupations between 1982 and 1983, compared with workers age 25 to 44 (see Figure 3-5).

- *The dearth of young workers may hamper the ability of companies to grow rapidly or to respond to change.* With the absolute numbers of new workers age 16–34 declining by almost 5 million, many companies may find themselves unable to move rapidly to hire large numbers of new workers to respond to changing economic conditions. The overnight creation of a Federal Express, an MCI, or an Apple Computer Company may become more difficult as the numbers of young people drop. The traditional process of "creative destruction," by which a company uses new hires to start a new division, while laying off older workers in slowly-growing sectors may become much more difficult. Not only will early retirements be more expensive, but wages of young workers may be higher. Impacts of this type will be felt most severely in the Midwest and Northeast, where outmigration over the last decade has dramatically reduced the numbers of current and future young workers. The North Central region of the country, for example, will experience a decline of three million people (22 percent) between the ages of 20 and 34 between 1980 and 2000, while the West experiences a gain of about one million (eight percent) at these ages.

Figure 3-5
YOUNG PEOPLE ARE MORE LIKELY TO CHANGE OCCUPATIONS



Source: "The Education, Training and Work Experience of the Adult Labor Force from 1984 to 1995," National Commission for Employment Policy, June 1985

- *Many companies with older workforces may find that their aging, higher-paid workers make them uncompetitive.* This will be particularly true of companies in slowly-growing industries or ones in which productivity is defined by production systems rather than by worker knowledge or skills, for example, automobiles, metals, and transportation. With no way to recover higher pay scales, higher pension charges (primarily as a result of vesting rather than actual retirements), and higher health care costs, companies may seek to roll back traditional seniority systems and other institutional arrangements for granting higher pay to older workers.
- *The job squeeze among middle-aged workers may become more intense.* The large increase in the numbers of middle-aged workers may collide with corporate efforts to reduce middle-management or to reduce vulnerability to demographic noncompetitiveness. Because a large fraction of the skills and productivity of older workers is valuable only to the firms they work for, older workers who lose jobs will have a particularly difficult time matching previous salaries when they find new jobs. A turbulent economy in which many firms are expanding and contracting in response to market conditions will be especially difficult for middle-aged and older workers. The long-standing pattern of increasing earnings until retirement may be substantially altered as a result.
- *Many industries that depend on young people for market growth will retrench.* Higher education, household furnishings, and rental housing construction could be most affected.

On balance, it appears that the impacts of the aging workforce may be favorable in the early 1990s, but could turn strongly negative by the turn of the century, as aging pushes the huge baby boom generation into its fifties.

Continued Feminization of the Workforce

Over the next 15 years, women are expected to continue to jo[in] the workforce in substantial numbers. By the year 2000, approximately 47 percent of the workforce will be women, and 61 percent of women will be at work. Women will comprise about three fifths of the new entrants into the labor force between 1985 and 2000 (see Table 3-4).

Much of the increase in the numbers of women in the labor force has come from increased participation by women with children. Of the 14.6 million married women who joined the labor force between 1960 an 1984, 8 million came from families with children. During that time period, the proportion of married mothers at work grew from 28 to 61 percent, and the share of all children under six whose mothers worked grew from 19 to 52 percent.

Women continue to be concentrated in traditionally female occupations that pay less than men's jobs. In 1980, 32 percent of all women were in jobs that were 90+ percent female, a figure that wa[s]

Table 3-4
WOMEN ARE GROWING SHARE OF THE WORKFORCE
(numbers in thousands, except percent)

	1950	1960	1970	1980	1990	2000
Women in the Workforce	18,389	23,240	31,543	45,487	57,230	66,670
Female Labor Force Participation Rate	33.9	37.7	43.3	51.5	57.5	61.1
Female Share of The Workforce	29.6	33.4	38.1	42.5	45.8	47.5

Source: U.S. Bureau of Labor Statics, Handbook of Labor Statistics, 1985, Tables 4 and 5; and unpublished data.

Figure 3-6
WOMEN HOLD A GROWING SHARE OF MANAGERIAL AND PROFESSIONAL JOBS
(Percent Female)

Source: U.S. Bureau of the Census, 1980 Census of the Population, Supplementary Reports; and Bureau of Labor Statistics, "Handbook of Labor Statistics, 1985, Table 18

little changed from the 28 percent in 90+ female jobs in 1960. And in 1983, the wages of women working full-time were only 66 percent those of men, up only 4 percentage points from the figure in 1967.

There are signs however, that these patterns may change substantially over the next 13 years. For example, women are a rapidly increasing share of many traditionally male occupations, particularly those requiring advanced education (see Figure 3-6).

These proportions are likely to rise further over the next 15 years, as the number of women graduating from professional schools increases. For example, in 1983, 45 percent of those receiving accounting degrees, 36 percent of new lawyers, 36 percent of computer science majors, and 42 percent of business majors were women. And although women's wages relative to men's have shown little improvement when looked at over two decades, the pattern of the last five years is more encouraging, with relative wages gaining five percentage points in five years. One Rand study projects that women's wages will equal 74 percent of men's by the year 2000.

The flood of women entering the workforce during the last three decades has been driven by powerful social and economic trends. Slow economic growth has made two earners a necessity for many families striving for a middle class lifestyle. Technology has simplified homemaking at the same time that society has redefined the role of women to include paid employment as the norm for most.

At least two facts, however, suggest that the entrance of women into the workforce will slow down and may peak by the year 2000:

- *Labor force participation rates for women aged 55–64 peaked in 1969 and are now two percentage points below their high.* As more women are able to retire early on their own or their husband's pensions, labor force participation among this group may decline. If labor force participation among this age group were to maintain its 15-year downtrend, about 500,000 fewer women would be in the labor force in the year 2000 than are currently projected by the Bureau of Labor Statistics.
- *Mothers want to work less than they do now.* According to a recent Gallup poll, only 13 percent of working women with children want to work full-time, regular hours, although 52 percent of them hold full-time jobs. Six of ten working mothers want part-time employment, flexible hours, or stay-at-home jobs, and 16 percent would prefer not to work at all. Only half of all women believe that they can adequately fulfil their responsibilities to their children if they work full-time. If employers fail to provide sufficient jobs with flexible working arrangements, more mothers may choose to leave the labor force during their child-rearing years, further reducing the numbers of new workers entering the workforce.

The Impact of Working Women

Even if rates of female labor force participation rise more slowly than projected, the impacts of the increased numbers of women in the workforce will still be profound. In less than a generation, the nation's pattern of employment has been radically altered, from one in which most married women stayed home, to one in which nearly everyone is paid to work. Because so much of the change has occurred since 1960, the society has not fully digested its implications. Over the next 13 years, policies and patterns of child rearing, taxation, pensions, hiring, compensation, and industrial structure will change to conform to the new realities:

- *The economic growth that the economy has enjoyed as a result of the shift of women from low-productivity, unpaid housework to paid employment will taper off.* Between 1970 and 1980, 14 million women joined the workforce; between 1990 and 2000, only 9 million will do so. As fewer women move from the unmeasured to the measured economy, economic growth rates will be lower.

• *Day care and pre-school education will become more heavily subsidized, institutionalized, and regulated.* Parents, government, and industry will all become more involved. As evidence accumulates concerning the positive impacts on children of high-quality day care, the pressure for ever higher standards will grow. Day care, like health care during the 1970s, will claim a rising fraction of national income. By the year 2000, it may be routine for employers to subsidize or directly provide care, and school systems may have lowered the age for starting school to five or younger. Federal day care programs for children of welfare mothers, early childhood education for disadvantaged children, and tax subsidies for child care may be substantially expanded.

• *The tax system will be subject to periodic readjustments of the "marriage penalty," child care deductions, and other anomalies,* as society struggles to reconcile its notions of fairness and its desire to promote families, with the reality of higher incomes for two-earner families.

• *The workforce may become less flexible, as two-career families become less willing to move.* Although corporations will be forced to provide more relocation assistance to spouses, the two-career trend will reinforce the rigidity that develops because of aging. Middle aged, two-career families will become geographically immobile.

• *The distinctions between male and female jobs and wage rates will decline in response to market pressures, and possibly as a result of union and government intervention.* The rapid rate at which women are being integrated into the professions will make sex discrimination less of a concern by the year 2000 than it is today.

• *Part-time, flexible, and stay-at-home jobs will increase, and total work hours per employee are likely to drop in response to the needs of women to integrate work and child-rearing.* In combination with the continued trend toward early retirement, a greater fraction of national income will be taken as leisure, and this will depress measured GNP.

• *Benefit policies are likely to be restructured to reflect the desires of two-earner families and single workers.* For example, "cafeteria" benefit plans, which enable a worker to choose from a menu of health, retirement, leave, and other benefits, subject only to a dollar limitation, are likely to become more widespread. Under such plans, a single parent might choose more day care, health, and flexible leave options, while a middle-aged household head might choose more insurance, retirement, or savings programs. Similarly, private pension benefits are likely to be tied more closely to individuals and their earnings, and to be based less on years of service, family status, and income from other sources such as Social Security.

• *In contrast to this tailoring of private plans to individual needs and earnings, public programs are likely to move in the other direction,* with a trend towards increased means-testing of social security, Medicare, and federal pensions, and increased support for families with children. As a result of these diverging patterns, society's access to many pension, health, and other benefits is likely to be increasingly segregated between those available to earners—which are strictly tied to economic value, and those available through government—which are increasingly oriented toward individuals with lower income and children.

Minorities Will Be A Growing Share of the Workforce

Over the next 13 years, blacks, Hispanics, and other minorities will make up a large share of the expansion of the labor force. Non-whites, for example, will comprise 29 percent of the net additions to the workforce between 1985 and 2000 and will be more than 15 percent of the workforce in the year 2000 (see Table 3-5).

Black women will comprise the largest share of the increase in the non-white labor force. In fact, by the year 2000, black women will outnumber black men in the workforce, a striking contrast to the pattern among whites, where men outnumber women by almost three to two.

Table 3–5
NON-WHITES ARE A GROWING SHARE OF THE WORKFORCE
(numbers in millions)

	1970	1985	2000
Working Age Population (16+)	137.1	184.1	213.7
Non-White Share	10.9%	13.6%	15.7%
Labor Force	82.8	115.5	140.4
Non-White Share	11.1%	13.1%	15.5%
Labor Force Increase (Over Previous Period)	X	32.7	25.0
Non-White Share	X	18.4%	29.0%

Source: Bureau of Labor Statistics, Handbook of Labor Statistics, 1985, Table 4 and 5; and Hudson Institute.

Table 3-6
BLACKS AND HISPANICS ARE MUCH LESS
SUCCESSFUL IN THE LABOR MARKKET
(1983)

	White	Black	Hispanic
Labor Force Participation	64.3	61.5	63.8
Unemployment Rate	8.4	19.5	13.7
Median Family Employment (Weekly)	$487	$348	$366
Percent Below Poverty	12.1	35.7	28.4
Median Years of Schooling	12.8	12.5	12.1

Source: U.S. Bureau of Labor Statistics, U.S. Bureau of the Census.

By almost every measure of employment, labor force participation, earnings, and education, black and Hispanic minorities suffer much greater disadvantages than whites (see Table 3-6).

To these statistical indices must be added the extensively analyzed and debated indications of social disadvantage, such as poor performance in schools, greater dependence on welfare, greater incidence of broken families and children born to unmarried mothers, and higher rates of criminal arrest.

Two particularly disturbing trends in the patterns of disadvantage among minorities are the declines in male labor force participation and the related increase in the numbers of female household heads. From 1970 to 1984, for example, the proportion of prime age black men in the labor force dropped from 79 percent to 74 percent, while the proportion of black families headed by women rose from 28 to 43 percent.

The Uncertain Outlook

Though it appears very likely that the labor market will be increasingly comprised of disadvantaged minorities over the next 13 years, it is much less clear whether the disadvantages these groups suffer will be getting better or worse during this period of tighter labor markets. Several factors are worth noting:

- *Relative rates of unemployment and earnings have not improved during the past decade and may be becoming worse.* For example, the ratio of black family income to white family income, which rose from .54 to .61 between 1950 and 1970, fell back to .56 in 1983. For Hispanics, family income figures show a drop from .71 to .66 between 1973 and 1983. Black unemployment, which averaged about 2.1 times white rates from 1972 to 1977, climbed to 2.4 times white rates from 1978 to 1983. For Hispanics, the ratio was stable at about 1.6.
- *Blacks and Hispanics are overrepresented among declining occupations.* In a study by the Equal Employment Opportunity Commission, both groups were 35 percent more likely to be employed in occupations projected by the BLS to lose the most employees between 1978 and 1990.
- *Blacks and Hispanics are concentrated in a small number of central cities beset by severe problems.* Fifty-seven percent of blacks and 49 percent of Hispanics, compared to 25 percent of whites, live in central cities. Forty percent of all blacks live in 11 cities, only two of which, Los Angeles and Atlanta, are in the highest growth regions of the country.

The prospect that minorities will comprise a very large fraction of the new additions to the labor force over the next 13 years appears, on the surface, to present an unprecedented opportunity. As employers reach further down the labor queue, they might be expected to provide better job prospects for historically disadvantaged groups and to invest more heavily in their education and training.

But the pattern of job growth in higher-technology occupations requiring more education, and the likelihood of greater employment gains in metropolitan regions with fewer minority residents, suggest that this sanguine outlook is far from assured. In fact, given the historic patterns of behavior by employers, it is more reasonable to expect that they will bid up the wages of the relatively smaller numbers of white labor force entrants, seek to substitute capital for labor in many service occupations, and/or move job sites to the faster growing, more youthful parts of the country, or perhaps of the world. Blacks, and particularly black men, are those most likely to be put at risk if such strategies dominate.

Immigrants Will Be a Growing Share of the Population and the Labor Force

Between 1970 and 1980, the foreign-born population of the U.S. (as counted by the Census Bureau) grew by about 4.5 million, accounting for about a fifth of the U.S. population gain during the period. While this number was more than a third greater than the number who entered in the 1960s, it was small by historical standards. At the turn of the century, for example, immigrants added about one percent per year to the U.S. population, compared with the current rate of about one-fifth of one percent.

In the wake of amendments to the immigration laws in 1965, recent immigrants have come mostly from Latin America and Asia, in dramatic contrast to earlier immigrants. Of those who entered the country after 1970, 78 percent came from these two regions; of those entering the country before 1960, 79 percent came from Canada and Europe.

Most of the new immigrants have settled in the South and West. The number of foreign-born residents in the South grew by 120 percent from 1970 to 1980, and by 97 percent in the West. In the North and Midwest, the numbers increased by only 10 percent. Three states, California, Texas, and New York, account for more than half of all foreign-born residents. One-fifth of all recent immigrants live in the Los Angeles area.

Immigrants represent a broad spectrum of social and educational backgrounds. Of adults who entered the U.S. in the 1970s, 25 percent had less than five years of school, compared to three percent of native-born Americans; on the other hand, 22 percent were college graduates, compared with 16 percent of natives.

Estimates of net inflow of illegal aliens into the country vary widely. The most recent Census Bureau estimates suggest that the number of illegals residing in the U.S. may be between 4 and 6 million, and the Council of Economic Advisors has estimated that this figure was increasing by between 100,000 and 300,000 people per year through the mid-1980s.

A number of factors suggest that, in the absence of radical policy changes, the number of legal and illegal immigrants will continue to be substantial. As the preferred destination for those seeking economic opportunity or political refuge, the U.S. will remain a powerful magnet for the rapidly-growing populations of Latin America and Asia. Between 1985 and 2000, for example, the population of Latin America alone is expected to increase by 150 million people.

Recent legislation that imposes sanctions against employers of illegal aliens may reduce this economic attraction. But the experience of other countries such as France, Canada, Switzerland, and West Germany that have imposed employer sanctions indicates that they are ineffective in controlling immigration, without vigorous enforcement. Moreover, legal immigration, which is a matter of right to members of the immediate family of naturalized citizens, is sure to increase simply as a result of the echo effect of the recent increases in legal immigration, as well as the legalization provisions of the new immigration law. As more recent immigrants become citizens, they will be entitled to bring in spouses and children without quota limitations.

For these reasons, if the conditions of the 1970s and early 1980s do not change radically, at least 450,000 immigrants are likely to enter the U.S. each year for the balance of the century. Immigration at this rate would add about 9.5 million people to the U.S. population (including the children of immigrants) and approximately 4 million to the U.S. labor force. If illegal immigration continues at recent rates, and legal immigration is unchanged, the 750,000 annual immigrants will swell the population by 16.1 million and the labor force by 6.8 million. A mid-point forecast of 600,000 immigrants annually is used in the surprise-free scenario. Even under the most conservative assumptions, both the Hispanic and Asian populations are likely to double, to 30 million and 10 million, by the year 2000. As they have in the past, most of these new residents will cluster in the cities and states where they are concentrated today. California is likely to be particularly affected, with more than two-fifths of its population being Hispanic or Asian by the year 2000.

The Impacts of Immigration

Although immigration triggers fears of job losses and earnings stagnation, the evidence suggests that, on balance, levels of immigration of 450,000–750,000 will benefit the country. For example, studies of the Los Angeles labor market, where more than 1 million foreign-born persons settled during the 1970s, show that job growth was well above the national average during the period and that unemployment fell below national rates. Although manufacturing wages were depressed as a result of the immigrant influx, service industry wages, in which native-born American were concentrated, rose faster than the national average.

Since immigrants to Los Angeles have been both less-educated (57 percent had less than a grade school education) and more numerous than those expected nationally over the next 13 years, the Los Angeles experience is a persuasive argument that immigration need not overwhelm the "carrying capacity" of the country.

One particularly important concern with immigration is its impact on the job prospects of native minorities. Although the evidence is not definitive, the results of one statistical analysis of 247 metropolitan areas concluded that black unemployment rates are not increased by a rise in the proportion of Mexican immigrants in a local labor market. These results suggest that, to some extent, immigrants are complementary to, rather than in competition with, native minority workers.

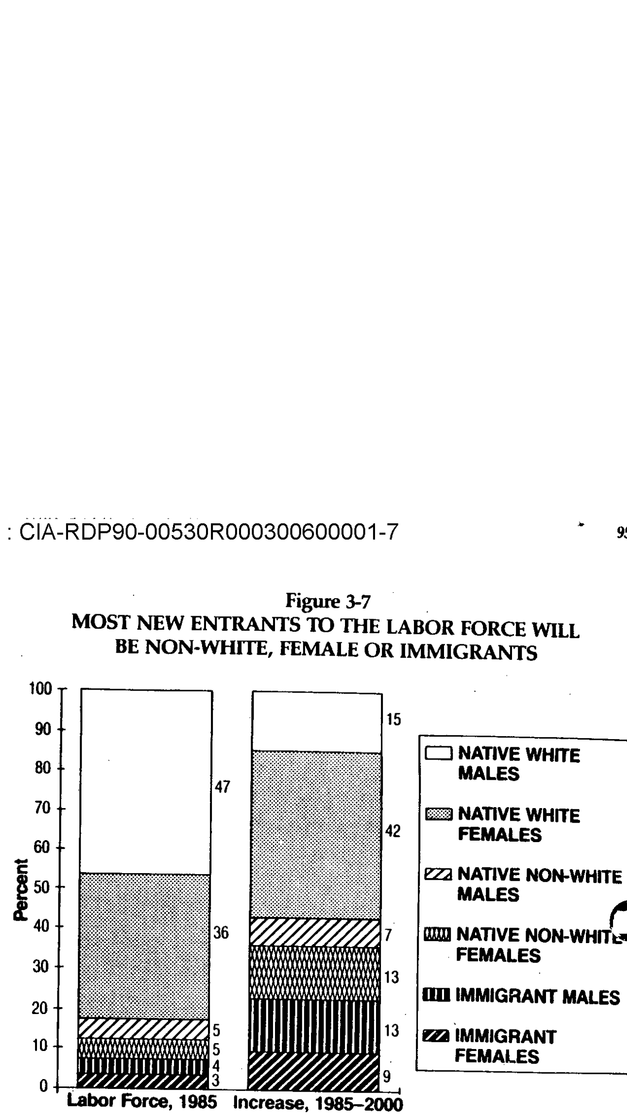
In fact, it is plausible that residents of areas that experience significant influxes of immigrants will benefit rather than suffer from the new workers. This will be particularly likely over the long-run. Census data and other studies have shown that, over 10 or 20 years, the earnings of immigrants and their offspring will equal or exceed those of native-born Americans with similar characteristics. The South and West, already enriched by their comparative surfeit of young workers, will be even more likely to attract new jobs and self-reinforcing economic growth, if immigration rises and if these immigrants succeed in the labor market in later years.

Despite the evidence of economic benefits, immigration has always triggered negative emotional reactions from natives, and the current concerns with the "loss of control" of U.S. borders are continuing this tradition. A plurality of poll respondents favor less immigration, and only 7 percent favor more. It is not unlikely that, over the next 13 years, the political reaction to these voter attitudes will lead to much more restrictive and vigorously-enforced legislation and to dramatically reduced immigration flows.

One particularly ominous version of this scenario might result from an explosive increase in the numbers of immigrants following, for example, a major revolution in Central or South America. Huge numbers of refugees might throng into the country, followed by the passage of harsh laws and strict border controls. The supply of immigrant labor might become one more rapidly-fluctuating factor in the economic equation of the South and West, similar to the price of oil, the value of the dollar, or the rate of inflation.

Even if no radical border-closing laws are passed, one likely outcome of the anti-immigrant emotions will be greater divisions between Hispanics and blacks. If the labor market experience of Hispanics and blacks diverges, the unity of interest that currently appears to unite these groups may crumble. By the year 2000, it is possible that the political relationships between blacks and Hispanics will be beginning to resemble those between blacks and older urban ethnic groups such as the Italians, Irish, or Poles.

Figure 3-7
MOST NEW ENTRANTS TO THE LABOR FORCE WILL BE NON-WHITE, FEMALE OR IMMIGRANTS



Source: Hudson Institute

The Workforce of 2000

The cumulative impact of the changing ethnic and racial composition of the labor force will be dramatic. The small net growth of workers will be dominated by women, blacks, and immigrants. White males, thought of only a generation ago as the mainstays of the economy, will comprise only 15 percent of the net additions to the labor force between 1985 and 2000 (see Figure 3-7).

For companies that have previously hired mostly young white men, the years ahead will require major changes. Organizations from the military services to the trucking industry will be forced to look beyond their traditional sources of personnel. For well-qualified minorities and women, the opportunities will be unusually great.

The Changing Job Mix

What will be workforce of 2000 be doing? The changes projected for the nation's industrial structure will restructure U.S. occupational patterns. The jobs that will be created between 1987 and 2000 will be substantially different from those in existence today. A number of jobs in the least-skilled job classes will disappear, while high-skilled professions will grow rapidly. Overall, the skill mix of the economy will be moving rapidly upscale, with most new jobs demanding more education and higher levels of language, math, and reasoning skills. These occupational changes will present a difficult challenge for the disadvantaged, particularly for black men and Hispanics, who are underrepresented in the fastest growing professions and overrepresented in the shrinking job categories.

Predicting The Jobs of the Future

Each industry requires a different mix of occupations to create its products or services. The insurance industry, for example, requires far more accountants and lawyers and many fewer cashiers than the retailing business. Within manufacturing, research-intensive industries such as computers require more scientists and engineers, but employ fewer tool and die makers than traditional industries such as steel or automobiles.

The occupational mix of each industry changes gradually, as industries adjust to their evolving environment by employing people with different skills and occupational titles. The health-care industry, for example, is increasingly dominated by large national firms that manage a wide variety of hospitals, clinics, and other facilities. For this reason, the industry is employing increasing numbers of managers and administrators whose jobs did not exist 15 years ago.

By projecting these changes in the mix of occupations in each industry and applying the projected matrix to the predicted industrial structure of the economy in the year 2000, it is possible to forecast coming changes in the mix of occupations.[2] The results suggest that the job prospects for professional and technical, managerial, sales, and service jobs will far outstrip the opportunities in other fields. In contrast to the average gain of about 25 percent across all occupational categories, the fastest growing fields—lawyers, scientists, and health professionals—will grow two to three times as fast. On the other hand, jobs machine tenders, assemblers, miners, and farmers actually decline (see Table 3-7).

Table 3-7
THE CHANGING OCCUPATIONAL STRUCTURE, 1984–2000

Occupation	Current Jobs (000s)	New Jobs (000s)	Rate of Growth (Percentage)
Total	105,008	25,952	25
Service Occupations	16,059	5,957	37
Managerial and Management-Related	10,893	4,280	39
Marketing and Sales	10,656	4,150	39
Administrative Support	18,483	3,620	20
Technicians	3,146	1,389	44
Health Diagnosing and Treating Occupations	2,478	1,384	53
Teachers, Librarians, and Counselors	4,437	1,381	31
Mechanics, Installers, and Repairers	4,264	966	23
Transportation and Heavy Equipment Operators	4,604	752	16
Engineers, Architects, and Surveyors	1,447	600	41
Construction Trades	3,127	595	19
Natural, Computer, and Mathematical Scientists	647	442	68
Writers, Artists, Entertainers, and Athletes	1,092	425	39
Other Professionals and Paraprofessionals	825	355	43
Lawyers and Judges	457	326	71
Social, Recreational, and Religious Workers	759	235	31
Helpers and Laborers	4,168	205	5
Social Scientists	173	70	40
Precision Production Workers	2,790	61	2
Plant and System Workers	275	36	13
Blue Collar Supervisors	1,442	−6	0
Miners	175	−28	−16
Hand Wworkers, Assemblers, and Fabricators	2,604	−179	−7
Machine Setters, Operators, and Tenders	5,527	−448	−8
Agriculture, Forestry, and Fisheries	4,480	−538	−12

Source: Hudson Institute.

Rising Educational and Skill Requirements

Among the fastest-growing jobs, the trend toward higher educational requirements is striking. Of all the new jobs that will be created over the 1984–2000 period, more than half will require some education beyond high school, and almost a third will be filled by college graduates. Today, only 22 percent of all occupations require a college degree. The median years of education required by the new jobs created between 1984 and 2000 will be 13.5, compared to 12.8 for

[2]See the technical appendix for details of the methodology employed in these projections.

Table 3-8
THE OCCUPATIONS OF THE FUTURE WILL REQUIRE MORE EDUCATION

	Current Jobs	New Jobs
Total	100%	100%
8 Years or Less	6%	4%
1–3 Years of High School	12%	10%
4 Years of High School	40%	35%
1–3 Years of College	20%	22%
4 Years of College or More	22%	30%
Median Years of School	12.8	13.5

Source: Bureau of Labor Statistics, Hudson Institute.

the current workforce (see Table 3-8).

Looked at another way, of the job categories listed in Table 3-7 that are growing faster than average, all but one—service occupations—require more than the median level of education for all jobs. Of those growing slowly or declining, not one requires more than the median education (see Figure 3-8).

These estimates assume that, for each occupation, the new jobs created will require the same levels of education required for that occupation today. The recent trend, however, is toward higher education levels in each job category. If this trend prevails, levels of educational attainment required for new jobs may be even higher than those projected.

Education levels, of course, are only a rough proxy for the skills required for employment. But more detailed analysis of the language, math, and reasoning skills required for various jobs reinforces the conclusion that the skill mix of the U.S. economy will rise substantially between now and the end of the century. For example, when occupations are ranked by the U.S. Department of Labor according to a specific set of skill criteria, there is a direct correlation between the level of skills required and the rate of growth of employment in the occupation. Ranking of all jobs according to the skills required on a scale of 1–6, with six being the highest level of skills,[3] indicates that

[3]For example, in the area of language development, a job rated 6 might require an individual to read literature or scientific and technical publications, and to write journals or speeches. A level 2 might require only the ability to read stories and simple instructions, write compound and complex sentences, and speak using all tenses. In math, the top-skill group would be expected to use advanced calculus, econometrics, or statistical probabilities, while a level 2 would be expected only to add, subtract, multiply, and divide, compute ratios and percents, and interpret bar graphs. See the technical appendix for more details.

Table 3-9
FAST-GROWING JOBS REQUIRE MORE LANGUAGE, MATH, AND REASONING SKILLS

	Current Jobs	Fast Growing	Slowly Growing	Declining
Language Rating	3.1	3.8	2.7	1.9
Math Rating	2.6	3.1	2.3	1.6
Reading Rating	3.5	4.2	3.2	2.6

Source: Hudson Institute.

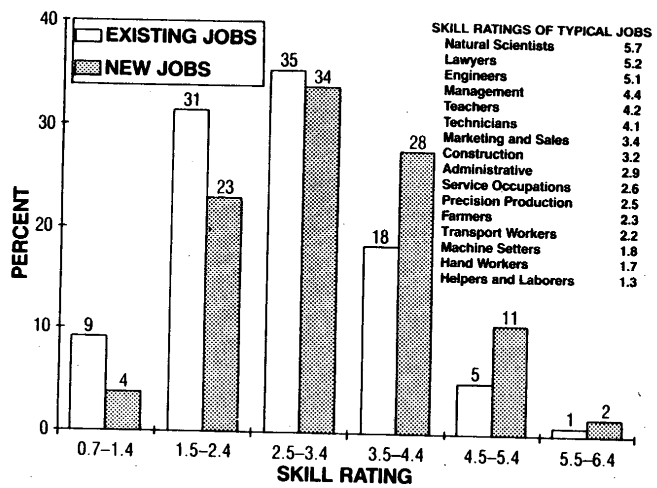
the fastest-growing jobs require much higher math, language, and reasoning capabilities than current jobs, while slowly-growing jobs require less. Natural scientists and lawyers, for example, whose average skill requirements are the highest rated at 5.7 and 5.2, are also the two fastest-growing occupations, with each field slated to add up to 70 percent more workers. Occupations in decline, on the other hand, show some of the lowest levels of required skill.(see Table 3-9) For example, machine setters and hand working occupations have language skill ratings of 1.8 and 1.7, and both will decline by more than 7 percent by the year 2000.

Looked at in aggregate, the picture is even starker. When skill requirements in language, reasoning, and mathematics are averaged, only four percent of the new jobs can be filled by individuals with the lowest levels of skills, compared to 9 percent of jobs requiring such low skills today. At the other end of the scale, 41 percent of the new jobs will require skills ranked in one of the top three categories, compared with only 24 percent that require such proficiency at present (see Figure 3-8).

Although the overall pattern of job growth is weighted toward higher-skilled occupations, very large numbers of jobs will be created in some medium-to low-skilled fields. In absolute numbers, the biggest job creation categories will be service occupations, administrative support, and marketing and sales, which together account for half of the net new jobs that will be created. In the service category, the largest groups are cooks, nursing aides, waiters, and janitors. Among administrative support jobs, secretaries, clerks, and computer operators predominate. In marketing and sales, most of the new slots will be for cashiers. With the exception of computer operators, most of these large categories require only modest levels of skill.

But even for these jobs, whose typical skill scores fall in the middle of the current skill range with total scores between 2.5 and 3,

Figure 3-8
LOW SKILLED JOBS ARE DECLINING



Source: Hudson Institute.

workers will be expected to read and understand directions, add and subtract, and be able to speak and think clearly. In other words, jobs that are currently in the middle of the skill distribution will be the least-skilled occupations of the future, and there will be very few net new jobs for the unskilled.

Moreover, these middle/low-skilled jobs are concentrated in service industries in which wage gains and productivity growth have traditionally been weak. Over the past two decades, a self-reinforcing pattern of job growth for low-skilled, low-productivity, low-paid workers has dominated much of the service economy. This has been a two-edged sword. On the one hand, it has provided millions of jobs for relatively low-skilled workers. On the other, it has hampered the improvement of productivity in the economy and held down overall wage gains.

As discussed earlier, demographic, institutional, and technological changes are likely to force substantial streamlining and automation of many service industries by the year 2000. When this occurs, it will benefit the economy by raising overall productivity and wage levels within these industries. For unskilled workers, however, it will mean that job opportunities may be even scarcer than these projections suggest. Unless the nation is able to bring even its least able workers up to higher standards of education and skills, it is likely that average rates of unemployment will rise, as service industries are automated. If service industry productivity rises as expected, the pattern of structural unemployment at ever-higher levels during each cyclical recovery will become more pronounced.

The Impact of the Changing Job Market On Minority Workers

How will the changing job market affect the employment prospects of the various groups within the society? In particular, what do the changes promise for disadvantaged groups such as blacks and Hispanics?

By analyzing the current occupational patterns of blacks, Hispanics, and others, and projecting these patterns onto the occupational matrix forecast for the year 2000, it is possible to estimate the likely impacts of the changing job market. If each group is assumed to retain its share of the jobs in each occupational category, the overall impact of the changing job market on the job prospects of various groups of workers can be estimated. Comparing this implied job share with the projections of the share of the new labor force entrants that various groups will comprise gives an indication of the degree to which traditional occupational patterns must change over the next decade and a half. Although such an analysis should not be interpreted as a projection, it can indicate the scale of the challenge that the society faces in fully employing all its members in the future.

For black men and Hispanics, the job market will be particularly difficult (see Table 3-10). In contrast to their rising share of the new entrants into the labor force, black men will hold a *declining* fraction of all jobs if they simply retain existing shares of various occupations. Black women, on the other hand, will hold a rising fraction of all jobs if they retain their current shares of each occupation, but this increase will be less than needed to offset their growing share of the workforce.

Similarly, although the economy will be creating more jobs in the categories traditionally held by middle-aged workers and women, the increases will not be enough to offset the increases in the labor force

Table 3-10
BLACK MEN AND HISPANICS FACE THE GREATEST DIFFICULTIES IN THE EMERGING JOB MARKET

Group	Share of Current Jobs	Implied Share of New Jobs (1985–2000)	Share of Labor Force Growth
Women	45.0%	50.5%	59.3%
Blacks	9.9%	9.5%	19.7%
Black Men	4.9%	3.8%	7.7%
Black Women	5.1%	5.6%	12.0%
Hispanics	6.4%	5.0%	22.0%
Ages 16–24	19.1%	17.9%	−9.6%
25–44	51.6%	53.0%	44.8%
45+	29.3%	29.1%	64.8%

Source: Hudson Institute Projections.

in these categories. For young people, the small decline in the numbers of jobs they traditionally have held will be overwhelmed by a large decline in the numbers of young people entering the workforce. This suggests both that there will be substantial shifts in sex/race/age distribution of various occupations and that the greatest shifts must be made by minorities and by older workers and females. But because minorities are currently the least advantaged in terms of their skill levels and educational backgrounds, the transition for them will be particularly difficult.

The Implications of the Changing Occupational Structure

This rapid increase in the skills required for new jobs in the economy must be put in the context of the competence of the new workers entering the workforce. The evidence suggests that many millions of these new workers lack even the basic skills essential for employment. For example, the recent National Assessment of Educational Progress undertaken by the U.S. Department of Education (NAEP) found that among 21–25 year olds:

—only about three-fifths of whites, two-fifths of Hispanics, and a quarter of blacks could locate information in a news article or an almanac;

—only a quarter of whites, 7 percent of Hispanics, and 3 percent of blacks could decipher a bus schedule;

—only 44 percent of whites, 20 percent of Hispanics, and 8 percent of blacks could correctly determine the change they were due from the purchase of a two-item restaurant meal.

The forces that are shaping the U.S. economy will make it increasingly difficult for young Americans such as these to succeed in the job market. In particular, as change accelerates and more training is needed, many workers will need advanced skills simply to give them access to useful job training. For example, assembly-line workers in many manufacturing plants are learning statistical process control, a system that is beyond the reach of those without a solid grounding in mathematics.

As the U.S. economy becomes increasingly integrated with the world economy, the ability of the U.S. government or American unions to insulate workers without skills from competition with unskilled workers in other countries will decline. A decade ago, it was possible to pay unskilled janitors in automobile plants $12 per hour, because they worked in unionized, high-productivity plants in a wealthy economy. The economy of the future will not produce or sustain such high-wage, low-skill jobs.

During the 1985–2000 period, the good fortune to be born in or to immigrate to the United States will make less difference than the luck or initiative to be well-educated and well-trained. For individuals, the good jobs of the future will belong to those who have skills that enable them to be productive in a high-skill, service economy. For the nation, the success with which the workforce is prepared for high-skilled jobs will be an essential ingredient in maintaining a high-productivity, high-wage economy.

Occupational Outlook Handbook

1986–87 Edition

3

U.S. Department of Labor
William E. Brock, Secretary

Bureau of Labor Statistics
Janet L. Norwood, Commissioner

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Tomorrow's Jobs

The number and kinds of jobs needed in tomorrow's economy will depend on the interplay of demographic, economic, social, and technological factors. Employment in some occupations will grow much faster than the average rate of growth; others will decline in importance. Some jobs will emerge as a result of new technologies; others will disappear. And the nature of the work in many occupations probably will change.

The *Handbook* presents information about the job outlook for many occupations. In this chapter, which provides background for those discussions, you will find information about expected changes in the population, the labor force, and employment in major industrial sectors and broad occupational groups. Finally, there is a brief discussion of the importance of replacement needs in the employment outlook.

Population

Changes in population are among the basic factors that will alter employment opportunities. Changes in the size and characteristics of the population cause changes in the amount and types of goods and services demanded. These changes also alter the size and characteristics of the labor force—the people who are working and who are looking for work—which in turn can influence the amount of competition for jobs in an occupation. Three important population factors are population growth, shifts in the age structure of the population, and movement of the population within the country.

Growth. The population of the United States increased rapidly during the post-World War II "baby boom." During the 1960's, the rate of population growth dropped sharply and has remained at a low level since (chart 1).

In 1984, the population was about 237 million. It is expected to continue to increase slowly to about 260 million by 1995. Continued population growth will mean more consumers to provide with goods and services, causing greater demand for workers in many industries and occupations.

Age structure. Over time, the age structure of the population changes. Shifts in the age structure affect the job market in many ways. The low population growth of the 1960's and 1970's, for example, resulted in a decrease in the number of school-age children in the 1970's. This decrease lowered the demand for educational services and the employment opportunities in teaching. During the 1970's, as the large number of people born during the 1950's entered the labor force, competition increased for entry level jobs.

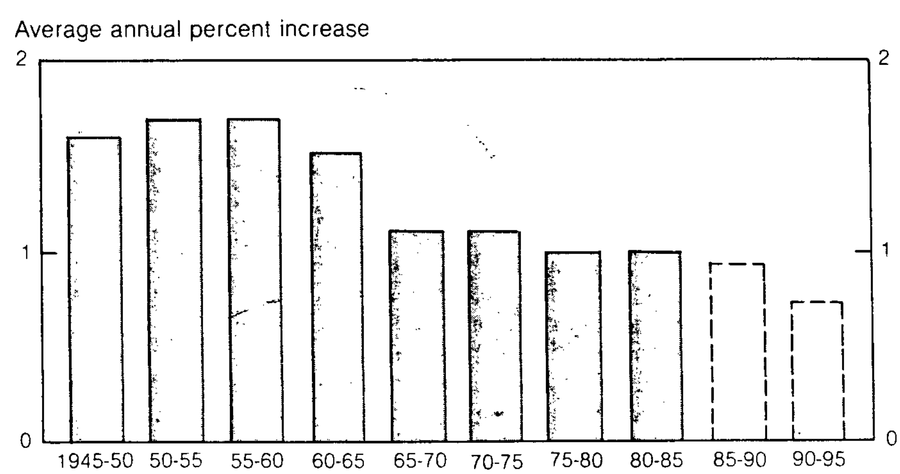
Through the mid-1990's, the age structure of the population will continue to shift and affect the job market. The number of children under 13 will increase as the large number of people born during the baby boom have children of their own. As the baby-boom group ages, the number of people age 35 to 54 will increase. The number of people 65 and older will rise sharply because of the relatively high population growth before the 1930's and increases in life expectancy. Because of low population growth during the 1970's and 1930's, the number of 14- to 25-year-olds and 55- to 64-year-olds will decline by 1995.

Increases in the number of children will cause greater demand for elementary school education through 1995. The increase in the number of older people will add to the demand for health services. Shifts in the age structure of the population also will affect the age structure of the labor force, discussed in a later section.

Movement of population. Population growth varies among the regions of the Nation. For example, between 1970 and 1980, the population of the Northeast and the Midwest (formerly called North Central) regions increased by 0.2 percent and 4.0 percent, respectively, compared with 20.0 percent in the South and 23.9 percent in the West. These differences reflect the movement of people seeking new jobs or retiring and higher birth rates in some areas than others. Chart 2 shows the expected changes in State populations between 1980 and 2000 if the movement of people during that period is similar to the movement between 1970 and 1980.

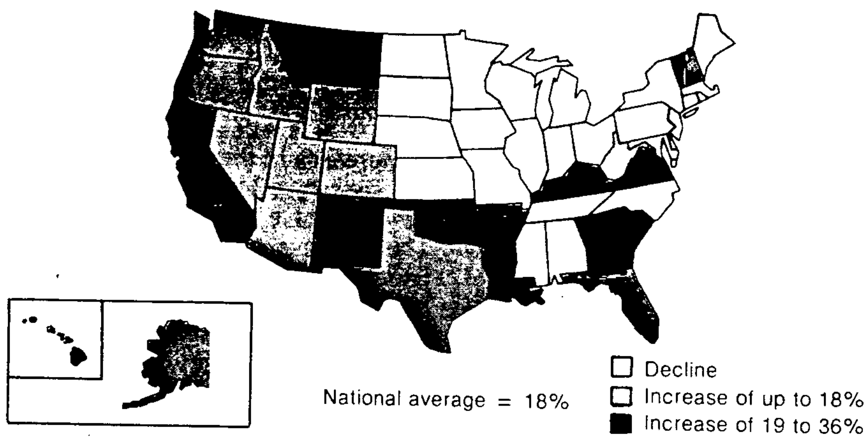
The overall movement of U.S. population will be to the South and West. The West will continue to be the fast-

Chart 1.
The population will grow more slowly through the mid-1990's.



SOURCE: Bureau of the Census

Chart 2.
Changes in population will vary among the States.
Projected percent change in State populations, 1980 to 2000



SOURCE Bureau of the Census

est growing region of the country, increasing about 45 percent between 1980 and 2000. In the South, the population will increase about 31 percent, with the largest absolute increase in population. The Midwest region is expected to increase only about 2 percent between 1980 and 1990, and to decline about 1 percent from 1990 to 2000. The population of the Northeast region will decline about 6 percent. By the year 2000, the West and the South will have about 60 percent of the Nation's population compared to about 52 percent in 1980.

The Northeast region will have the oldest age distribution; almost 15 percent of its population will be age 65 or older. The West will have the youngest age distribution; over 22 percent of the population will be under age 15, and about 45 percent will be between the ages of 15 and 44. The age distribution of the South and Midwest regions will be similar to the national average.

Geographic shifts in the population alter the demand for and supply of workers in local job markets. In areas with a growing population, for example, demand for public services and construction is likely to increase. However, more people looking for work could increase competition for jobs. Therefore, the areas with the fastest population growth may not necessarily offer the best job opportunities in every occupation. Because of population shifts, along with changes in demand for goods and services produced in an area, local employment opportunities in an occupation could differ greatly from national projections presented in the *Handbook*. Sources of information about local job market conditions can be found in the section "Where to Go for More Information."

Labor Force

The labor force is composed of people who are working and people who are looking for work. Population trends just discussed largely determine the growth and age structure of the labor force. Another significant factor is the level of education of the labor force.

Growth. In 1984, the civilian labor force—people with jobs and people looking for jobs—totaled about 114 million. The labor force will grow through the mid-1990's, but at a slower rate than in the 1970's and the first half of the 1980's (chart 3). Growth will be slower because the low birth rates during the 1960's and 1970's will result in fewer young people entering the labor force. By 1995, the labor force is projected to be about 129 million—an increase of about 14 percent from the 1984 level.

Through the mid-1990's, the chief cause of labor force growth will be the continued though slower rise in the number and proportion of women who seek jobs. Women will account for more than three-fifths of the labor force growth during 1984–95 (chart 4).

Age structure. Through the mid-1990's, the number of people age 16 to 24 in the work force is projected to decline (chart 5). Fewer young entrants into the labor force may ease competition for entry level jobs. In fact, employers may have increasing difficulty in finding young workers. The decline in the number of young workers could be particularly important to the Armed Forces—the single largest employer of people in this age group.

The number of people age 25 to 54 in the labor force is expected to increase considerably, from less than two-thirds of the labor force in 1984 to nearly three-fourths by 1995. The growing proportion of workers age 25 to 54 could result in higher productivity growth since workers in that age group generally have substantial work experience and tend to be the most productive.

The number of people age 55 and over in the labor force is projected to decline slightly, reflecting the trend to early retirement and the drop in the number of people age 55 to 65.

Education. Employers tend to hire the best qualified persons available. This does not mean that they always choose those applicants who have the most education. However, individuals planning for a career should be aware of the rising educational level of the work force. Between 1970 and 1984, for example, the proportion of the labor force age 18 to 64 with at least 1 year of college increased from 26 to 41 percent, while the proportion with 4 or more years of college increased from 13 to 22 percent (chart 6). The increase reflects both the retirement of older workers, many of whom had little formal education, and the entry into the work force of young people, who generally have a high level of formal education. Among workers age 25 to 34, for example, nearly half have completed at least 1 year of college and over a quarter had 4 or more years of college.

The disadvantage that less educated workers suffer when seeking jobs is clearly shown in their unemployment rate. In 1984, the unemployment rate among 20- to 24-year-olds with 1 to 3 years of high school was 26.7 percent. The rate for those with 4 years of high school was less than half that, 13.0 percent. The rates for those with 1 to 3 years of college and 4 or more years of college were only 7.8 and 4.9 percent, respectively. The connection between higher unemployment rates and low levels of education shows the importance of education in a job market that increasingly requires more formal training.

However, it is also important to note that a college degree no longer guarantees success in the job market. Between 1970 and 1984, employment of college graduates grew 127 percent. The proportion employed in professional, technical, and managerial occupations, however, declined because these occupations did not expand rapidly enough to absorb the growing supply of graduates. As a result, 1 out of 5 college graduates who entered the labor market between 1970 and 1984 took a job not usually requiring a degree. This oversupply of graduates is likely to continue through the mid-1990's. Not all occupations requiring a college degree will be overcrowded, however. Good opportunities will exist for systems analysts and engineers, for example.

Despite the generally competitive job market for college graduates, a degree is still needed for most high-paying and high-status jobs. Persons interested in occupations that require a college degree should not be discouraged from pursuing a career that they believe matches their interests and abilities, but they should be aware of job market conditions.

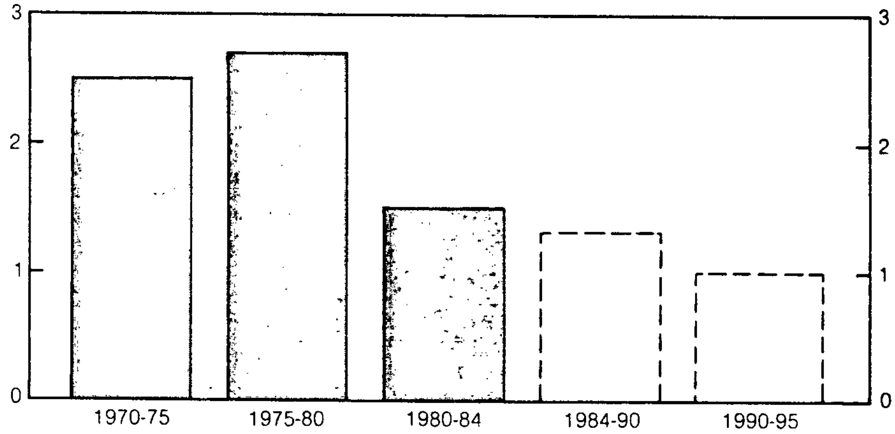
Economic, Technical, and Other Factors Affecting Employment

The previous two sections discussed trends in the population and the labor force that will affect employment opportunities. This section gives an overview of other factors that will affect the level of employment.

The number of jobs in particular industries and occupations depends in large part on the consumer, government, and business demand for goods and services produced by those industries and workers. Using a simple example, if people ate out more often, employment of cooks, waiters, and other restaurant workers would increase; employment of clerks and other grocery store workers would decline. In addition, employment in industries which produce restaurant equipment would grow; in industries that make grocery store equipment, employment would decline. The demand for smaller, more energy-efficient automobiles has prompted auto manufacturers to use more plastic, aluminum, and specialty steel and less of standard iron and steel. This shift has lowered the demand for products from the iron and steel manufacturing industry, the iron and metallurgical coal mining industries, and other industries that supply iron and steel manufacturers, so that employment in these industries has been adversely affected. At the same time, demand has increased for the products of the plastic, aluminum, and specialty steel industries and the industries that supply those manufacturers. Employment in those industries has benefited from the change.

Chart 3.
Labor force growth will slow through the mid-1990's.

Average annual percent increase



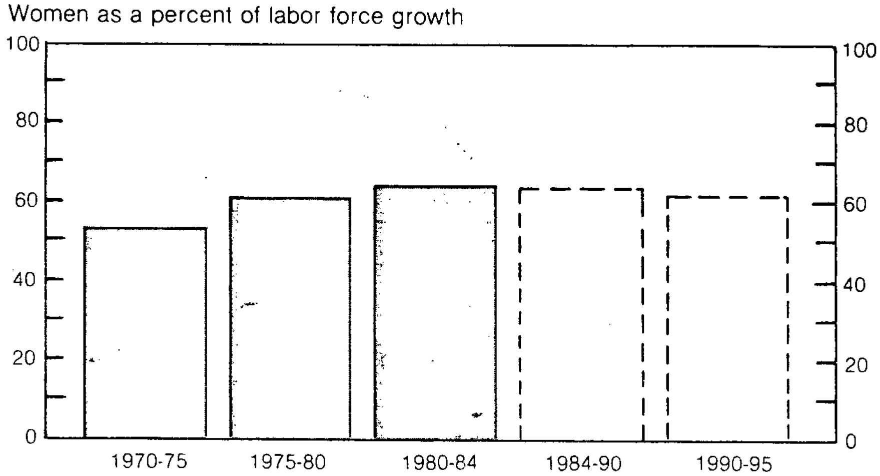
SOURCE: Bureau of Labor Statistics

As is clear from the first example, expansion or decline in industries affects growth in individual occupations differently because industries employ different mixes of workers (chart 7). Growth in manufacturing industries, for example, increases employment of production and material moving occupations, helpers, and laborers. In contrast, growth in the finance, insurance, and real estate industries increases employment of administrative, managerial, sales, and clerical workers.

Changes in the manner in which goods and services are produced also affect occupational and industrial em-

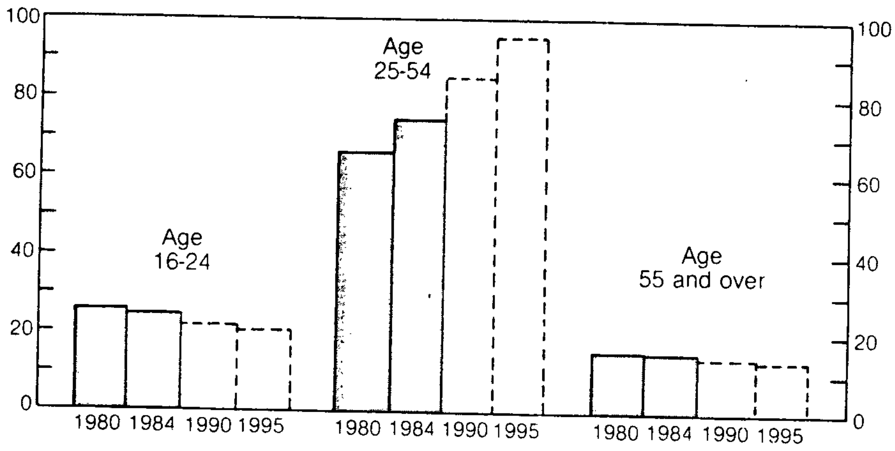
Chart 4.
Through the mid-1990's, women will account for over three-fifths of the growth in the labor force.

Women as a percent of labor force growth



SOURCE: Bureau of Labor Statistics

Chart 5.
The number of workers in the prime working ages will grow dramatically through the mid-1990's.



SOURCE Bureau of Labor Statistics

ployment. Increasing automation in automobile manufacturing, for example, is one of the factors expected to limit growth of assemblers, welders, and other production occupations in that industry. The increasing use of word processing equipment will mean little or no growth of typists in most industries. However, the introduction of new technologies will probably increase employment of engineers, technicians, computer specialists, and repairers. The overall impact of technology will be to increase the amount of goods and services each worker can produce. Output of goods and services is expected to increase rapidly, however, so that employment should continue to increase in most industries and occupations.

Other factors affecting employment are the fiscal policies of the Federal Government, the monetary policies of the Federal Reserve Board, the level of imports, and the availability of energy. Using information on these and other factors, the Bureau of Labor Statistics has prepared three sets of projections of employment in industries and occupations. Referred to as the base case and low- and high-growth alternatives, the projections are based on differing assumptions concerning growth of the labor force, unemployment, monetary and fiscal policy, and other factors. Each provides a different set of estimates of employment in 1995.

The alternatives developed by the Bureau represent only three of many possible courses for the economy. Different assumptions would lead to different projections of the economy. For this reason, the alternatives should not be viewed as the bounds of employment growth; rather, they illustrate what might happen. Furthermore, unforeseen changes in spending patterns, in levels of imports and exports, or in technology, could radically alter the projections for individual industries and occupations.

A discussion of the assumptions and methods used to develop these projections can be found in an appendix beginning on page 489. The projections were presented in the November 1985 issue of the *Monthly Labor Review*. For ease of presentation, the discussions of projections and outlook information in the *Handbook* focus on the base case.

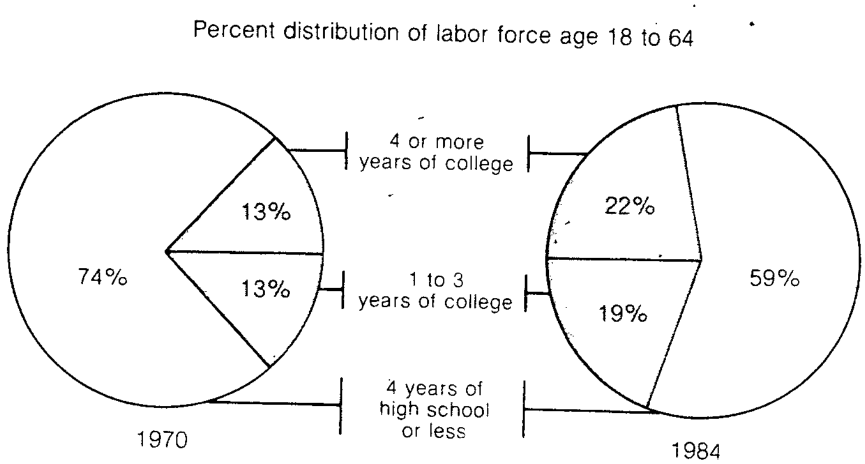
Employment Change

Employment is expected to increase from 106.8 million in 1984 to 122.8 million in 1995, or about 15 percent. This growth, while substantial, is much slower than growth during the previous 11-year period, for reasons discussed in the section on labor force growth. Employment change can be looked at in two ways: by industry and by occupation. The following two sections look at projected 1984–95 employment change from both perspectives.

Industrial Profile

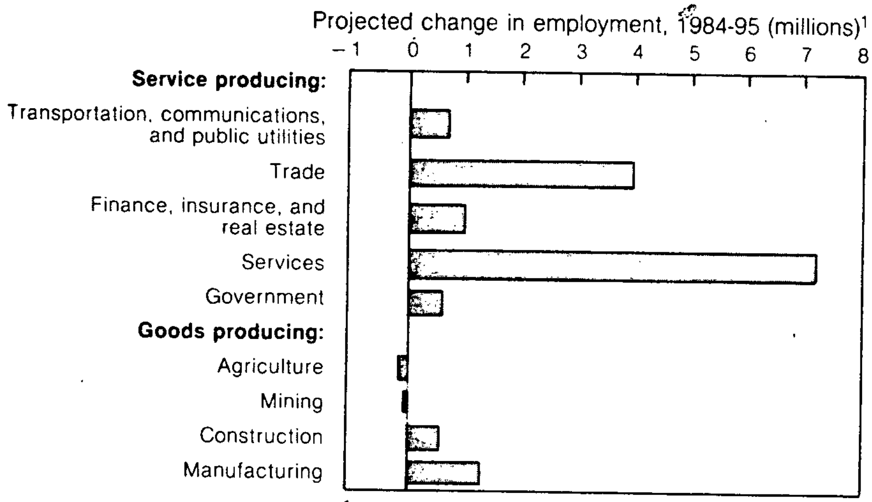
To discuss employment trends and projections in industries, it is useful to divide the economy into nine industrial sectors under two broad groups. These groups are goods-producing industries, which produce tangible products like apples, coal, and refrigerators, and service-producing industries, which produce intangibles such as health care, education, repair and maintenance, amusement and recreation, transportation, banking, and insurance. In 1984, over 7 of every 10 jobs were in industries that provide services. Industries that produce goods through farming, construction, mining, and manufacturing accounted for fewer than 3 of every 10 jobs.

Chart 6.
During the 1970's and early 1980's, the proportion of workers with a college background increased substantially.



SOURCE Bureau of Labor Statistics

Chart 9.
Through the mid-1990's, some industries will grow much faster than others.



SOURCE. Bureau of Labor Statistics

[1]Wage and salary employment except for agriculture, which includes self-employed and unpaid family workers.

28.3 million. Employment will rise despite the use of laborsaving innovations such as computerized inventory systems and automated warehouses.

The largest number of new jobs in the trade sector is projected to be in eating and drinking places. Large increases are also expected in department stores, grocery stores, and car dealerships. In wholesale trade, the largest increases will be in firms handling machinery, electrical goods, and motor vehicles.

Finance, insurance, and real estate. This was the second fastest growing service-producing sector during the 1970's and early 1980's as financial and banking needs mushroomed.

Between 1984 and 1995, employment in this sector is expected to rise 17 percent, from 6.3 million to 7.4 million. Demand for credit and other financial services should grow rapidly, but more automatic teller machines and computerized banking and stock transactions will prevent employment from growing as fast as output.

Services. This sector includes a variety of industries, such as hotels, barber shops, automobile repair shops, hospitals, engineering firms, and nonprofit organizations. During the 1970's and early 1980's, employment in this sector increased faster than in any other sector. Sharply rising demand for health care, data processing, and engineering and legal services were among the forces behind this growth.

From 1984 to 1995, employment in service industries is expected to increase 30 percent, from 23.4 million to 31.2 million, and provide more new jobs than any other sector. Business services, including data processing, temporary help supply agencies, and services to buildings, primarily cleaning, are expected to grow more rapidly and add more jobs than any other industry in the economy. Employment in health services also is expected to increase substantially, but cost containment measures are expected to restrict the rate of growth of health care industries despite increased demand generated by an aging population and by advances in medical technology. Large increases in employment also are expected in engineering, legal, social, and accounting services.

Government. During the 1970's and early 1980's, government employment rose, although most of this growth was in State and local government prior to 1980. Between 1984 and 1995, employment is expected to rise only 7 percent, from 16.0 million to 17.1 million. State and local government is projected to grow 9 percent but Federal employment is expected to remain about the same. About 3 out of 7 of the new jobs projected to be added in State and local governments will be in public education, which is projected to rise from 6.7 million in 1984 to 7.2 million in 1995. Employment in elementary schools is expected to rise faster than in high schools.

Goods-Producing Industries. Employment in these industries increased during the 1970's, but the 1980 and 1981–82 recessions caused a drop in employment. Although employment in these industries increased by 1984, it was still under the 1979 peak. Between 1984 and 1995, employment in goods-producing industries is expected to increase only 6 percent, from 29.6 million to 31.4 million, which is only slightly higher than employment in 1979. Significant variation in employment growth is expected among goods-producing industries.

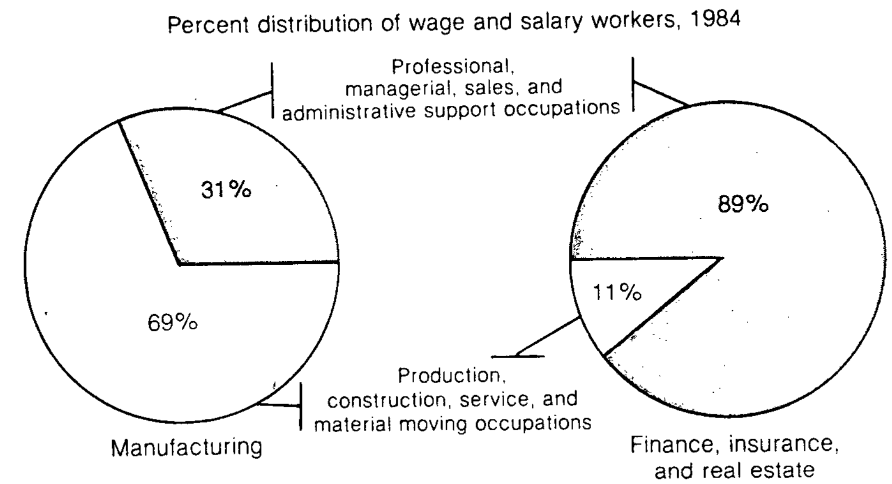
Agriculture. The use of machinery, fertilizers, feeds, pesticides, and hybrid plants has made possible increased farm output with a smaller work force. Domestic demand for food will increase slowly through the mid-1990's. Worldwide demand for food will increase because of population growth, and U.S. food exports will increase through the next decade. Farm productivity, however, will continue to improve—although more slowly than in the past—and employment is expected to continue to decline even as production rises. Between 1984 and 1995, agricultural employment is projected to drop 7 percent, from 3.3 to 3.0 million jobs.

Mining. Employment in the mining sector increased rapidly from 1973 to 1981, primarily due to increased mining of coal in response to oil shortages. It then declined substantially due to recession, foreign competition for metals, and a drop in the price of oil which brought the oil and gas boom of the early 1980's to a halt.

Between 1984 and 1995, employment in the mining industry is expected to decline 3 percent, from 651,000 to 631,000. Employment in oil and gas extraction is expected to increase only 1 percent as domestic production levels off; employment in coal mining is expected to decline due to productivity improvements and expected slow growth in demand. Most other mining industries are expected to have decreases in employment because of import competition and improvements in mining technology.

Construction. Employment in construction dropped considerably between 1979 and 1982, as high interest rates and low economic activity limit-

Chart 7.
Industries differ substantially in the kinds of workers they employ.



SOURCE. Bureau of Labor Statistics

Service-Producing Industries. Employment in service-producing industries has been increasing faster than employment in goods-producing industries (chart 8). As incomes and living standards have risen, peoples' desires for services have grown more rapidly than for goods. In addition, goods-producing industries have been contracting out to service industries many rapidly growing activities they had done internally, such as cleaning and maintenance, engineering design, and accounting. Furthermore, imports of foreign-made goods have increased, limiting the growth of U.S. goods-producing industries. Imports of services have not increased as much.

Employment is expected to continue to increase much faster in service-producing industries than in goods-producing industries (chart 9). In fact, service-producing industries are projected to account for about 9 out of 10 new jobs between 1984 and 1995. Employment in these industries is expected to increase 18 percent, from 77.2 million in 1984 to 91.3 million in 1995. Growth will vary among industries within the group. The following paragraphs summarize recent trends and employment projections in the five industrial sectors that make up the service-producing industries.

Transportation, communications, and public utilities. Employment has increased in air transportation and transportation services, but has declined in railroads and water transportation since 1979. Even in the communications industries, where demand has increased greatly, technological innovations have limited employment growth.

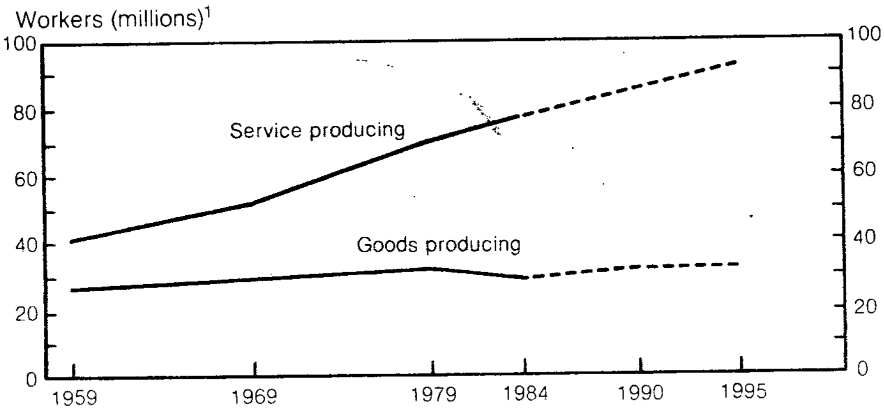
Between 1984 and 1995, employment in transportation, communications, and public utilities is expected to rise 14 percent, from 5.6 million to 6.4 million. Rising demand for new telecommunications services, resulting from the increased use of computer systems and the divestiture of the telephone company, will make communications the most rapidly growing industry in the sector. Employment in communications industries is projected to grow by 17 percent, from 1.4 million to 1.6 million. More efficient communication equipment, however, will keep employment from rising as rapidly as output.

Although employment in railroads is expected to decline, it is expected to increase in other transportation industries such as air transportation, local transit, and trucking. However, deregulation will continue to have an impact in trucking, where a shift to self-employed truckers is expected, and in airlines, where a much slower rate of growth than in the past is projected. On the other hand, the transportation services industry (mostly travel agencies) will grow rapidly. Employment in transportation as a whole should rise 14 percent, from 3.2 million to 3.7 million.

Demand for electric power, gas utilities, and water and sanitary services will increase through the mid-1990's as population and industry grow. Employment in industries that deliver these services is expected to increase 13 percent, from 1.0 million to 1.2 million.

Trade. Both wholesale and retail trade employment have increased as the population has grown and as rising incomes have enabled people to buy a greater number and variety of goods. During the 1970's and early 1980's, employment in trade increased at about the same rate as in service-producing industries as a whole. Between 1984 and 1995, wholesale and retail trade employment is expected to grow 16 percent, from 24.3 million to

Chart 8.
Industries providing services will continue to employ many more prople than those providing goods



[1]Includes wage and salary workers, the self-employed, and unpaid family workers.

SOURCE Bureau of Labor Statistics

ed new construction, but has since rebounded and now is higher than in 1979 because of lower interest rates and increased economic activity.

The construction industry is projected to benefit from an anticipated growth in investment, particularly after 1990. Between 1984 and 1995, employment in the construction sector is expected to increase 12 percent, from 5.9 to 6.6 million. Through the late 1980's, the demand for housing is expected to be strong as interest rates are projected to drop slowly and as the industry continues to recover from the low level of new residential construction during the 1980–82 recession years. During the early 1990's, the growth in households will slow and possibly limit the demand for new housing. Nonresidential construction is projected to recover from the recent oversupply of commercial office buildings and also to grow as factory modernization accelerates.

Manufacturing. Improved productivity and import competition caused a 1.6 million drop in manufacturing employment between 1979 and 1984, following a slight increase during the 1970's. Employment is expected to increase 7 percent, from 19.8 million in 1984 to 21.1 million in 1995 due to strong demand resulting from an expected capital spending boom and continued strong growth in defense expenditures. Only modest employment gains in manufacturing are expected because of the anticipated productivity increase from investment in high-technology capital equipment. Despite this growth, manufacturing employment in 1995 will still be slightly below the 1979 level. Several key manufacturing industries, such as automobile and steel manufacturing, are not expected to reach previous peak employment levels. On the other hand, the computer, materials handling equipment, and scientific and controlling instruments industries will be among the fastest growing industries.

Manufacturing is divided into two broad categories—durable goods manufacturing and nondurable goods manufacturing. Employment in durable goods manufacturing is expected to increase by 12 percent due to rising business, military, and consumer demand for computers, machinery, and electronic components. However, employment in nondurable goods manufacturing is projected to decline by 2 percent, reflecting the tendency of consumers to spend less of their budget on staples such as food and clothing as their income rises.

Occupational Profile

This section gives an overview of the changes expected in employment for 16 broad groups of occupations. These groups are based on the Standard Occupational Classification, the system used by all Federal agencies that collect occupational employment data.

In the following discussion, as throughout the *Handbook*, projected employment change in individual occupations usually is compared to the average for all occupations. Half a dozen phrases are used to describe the projected change in employment; they are explained in the box on page 4. It is important to remember that both the rate of growth and the size of the change in employment are important in analyzing the job outlook (chart 10).

Executive, administrative, and managerial occupations. In most of these occupations, employment is expected to increase about as fast as the average for all occupations. However, faster growth is expected for occupations in fast-growing industries. Employment of managers in the health industry, for example, is expected to increase much faster than the average. Employment of administrators and managers also should grow faster than the average in data processing services, credit and securities firms, automotive repairs, and social services. In contrast, managerial employment in government and education services is likely to grow more slowly than the average due to the anticipated modest growth of these industries.

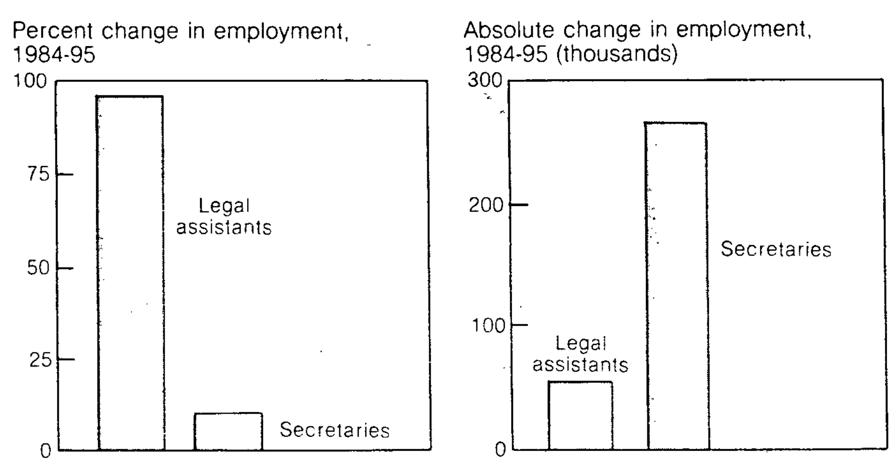
Employment of accountants and auditors will grow much faster than the average as managers rely more on accounting information to make business decisions. Employment of buyers, purchasing agents, and personnel specialists will increase about as fast as the average, while employment of construction and compliance and enforcement inspectors will increase more slowly than the average.

Because of the increasing number of people seeking managerial and administrative jobs and the increasing technical requirements in many of these occupations, experience, specialized training, or postbaccalaureate study will be needed for more of them. Familiarity with computers will be needed in more jobs as managers and administrators increasingly rely on computerized information systems.

Engineers, scientists, and related occupations. Employment in most of the occupations in this group is expected to increase as fast as or faster than the average; employment of engineers and systems analysts is expected to grow much faster than the average.

Increased military expenditures, growing demand for computers and other electronic equipment, and ex-

Chart 10.
Even though an occupation is expected to grow rapidly, it may provide fewer openings than a slower growing but larger occupation.



SOURCE: Bureau of Labor Statistics

pansion and automation in most areas of the economy are expected to lead to higher employment in engineering occupations. The growing application of computers will contribute to increased employment of systems analysts. Research to expand basic knowledge and to develop new technologies and products is expected to lead to higher employment in scientific occupations, although employment of scientists will grow more slowly than engineers.

Social science, social service, and related occupations. Employment in many of the occupations in this group is expected to grow about as fast as the average. However, due to the number of people interested in these fields, competition for jobs is expected in many occupations—especially for academic positions. Generally, prospects will be better for those with advanced degrees who seek work in applied fields. Competition also is likely for jobs as social and recreation workers in public and voluntary agencies as well as for salaried positions for lawyers.

Teachers, librarians, and counselors. Because of anticipated enrollment declines and an abundance of qualified jobseekers, competition is expected for college and university faculty. Only slow growth is expected in secondary school teaching.

Because elementary school enrollments are increasing, employment of elementary school teachers is expected to grow rapidly. Secondary school teachers, college faculty, and librarians in scientific and technical fields generally will face better job prospects.

Employment of vocational and educational counselors will grow as fast as the average, although growth will be faster in areas other than in schools, especially in mental health counseling.

Health-related occupations. This group includes health practitioners, nurses, health technicians and technologists, health service workers, dietitians, pharmacists, and therapists.

Employment in most of the health occupations is expected to grow faster than the average as population growth—especially in the number of older people—increases the demand for health care. Registered nurses and nursing aides and orderlies, because of the large size and anticipated growth of these occupations, will be among the occupations providing the most new jobs through the mid-1990's. Despite the anticipated growth in the health industry, physicians, dentists, chiropractors, and veterinarians seeking to establish practices can expect unprecedented competition due to the large number of newly trained practitioners entering those fields each year.

Pressure to contain costs, especially in hospitals, and technological advances will affect the projected rates of growth in many health-related occupations. For example, physician assistants, medical record technicians, and medical assistants will grow much faster than the average but automation of laboratory procedures will make for slower than average growth for medical and clinical laboratory technologists.

Writers, artists, and entertainers. This group includes reporters, writers, designers, public relations specialists, and performing artists. In most of these occupations, employment is expected to increase as fast as the average for all occupations. The continued growth of advertising, public relations, print and broadcast communications, and entertainment will spur employment growth.

Stiff competition for jobs in these occupations is likely, due to the large numbers of people they attract. Talent and personal drive will continue to be extremely important for success in these occupations. Within individual occupations, some areas will offer better job prospects. The best prospects for writers and editors, for example, will be in technical writing and in business and trade publications.

Technologists and technicians. Workers in this group provide technical assistance to engineers, scientists, and other professional workers as well as operate and program technical equipment independently. The continued growth in the importance of technology to national defense, office work, manufacturing, and other activities is expected to cause much faster than average employment growth for several occupations in this group, such as programmers and electrical and electronics technicians. Legal assistants are projected to grow faster than any other occupation as more of them are employed to aid lawyers and because of the expected growth in the demand for legal services.

Employment growth in some of the occupations will be limited by changes in technology. Employment of drafters is expected to increase much more slowly than the demand for drafting services because of productivity improvements realized by the use of computer-aided design equipment. Similarly, little or no change in the employment of air traffic controllers is expected due to the automation of air traffic control equipment.

Marketing and sales occupations. Employment of travel agents, security sales workers, and real estate agents is expected to grow faster or much faster than the average due to anticipated growth of the industries in which these workers are employed.

Many part-time and full-time job openings are expected for cashiers and retail trade sales workers due to the large size, high turnover, and expected employment growth in these occupations. Higher paying sales occupations, such as insurance agent and real estate agent, tend to be more competitive than retail sales occupations. Well-trained, ambitious people who enjoy selling will have the best chance for success.

Administrative support occupations, including clerical. Workers in this group prepare and record letters and other documents; collect accounts; gather and distribute information; operate office machines; and handle other tasks that help run businesses, government agencies, and other organizations. The increase in office automation systems will limit employment opportunities in some administrative support occupations. Changes in organizational practices also will affect employment for some of these occupations. Despite a growing volume of mail, little change is expected in the employment of mail carriers because of improved routing programs and more centralized mail delivery. However, despite the projected slow growth, several occupations in this group will provide many full- and part-time job openings due to their large size and high turnover. These include bank tellers, bookkeepers and accounting clerks, secretaries, shipping and receiving clerks, and typists.

Some administrative support occupations will enjoy faster or much faster than average employment growth. Employment of computer operators and peripheral equipment operators, for example, is expected to grow much faster than the average due to the increased use of computer systems.

Service occupations. This group includes a wide range of workers in protective, food and beverage preparation, cleaning, and personal services and is expected to account for more job growth than any other broad group. Among the protective service occupations, correction officers are expected to have much faster than average growth because of the increasing number of inmates, and guards are expected to have faster than average growth because of concern over crime and vandalism. Employment of police officers and firefighters is expected to increase about as fast as the average.

Rising incomes and the growing number of men and women who combine family responsibilities and a job are expected to contribute to faster than average employment growth among food and beverage preparation and service occupations such as bartenders, cooks, and waiters/waitresses. Due to the large size, high turnover, and growth of these occupations, full- and part-time job openings will be plentiful.

Agricultural and forestry occupations. Demand for food, fiber, and wood is expected to increase as the world population grows. The development and use of more productive farming and forestry methods, however, is expected to result in declining employment in most agricultural and forestry occupations.

Mechanics and repairers. These workers adjust, maintain, and repair automobiles, industrial equipment, computers, and many other types of machinery. Employment in most of these occupations is expected to grow about as fast as the average due to the greater use of machines throughout the economy. In some, employment will increase faster than the average. The increased use of computers and advanced office machinery, for example, will make employment of computer service technicians and office machine repairers grow much faster than the average. However, more reliable, easy-to-service machinery will limit employment growth for some mechanic and repairer occupations, such as communications equipment mechanics.

Construction occupations. Workers in this group are expected to experience average employment growth between 1984 and 1995. A rapid rise in spending for new industrial plants and an increase in the number of households are factors expected to lead to more new construction. Alteration and modernization of existing structures, as well as the need for maintenance and repair on highway systems, dams, and bridges, also will contribute to increased construction activity. However, the construction industry is very sensitive to changes in the Nation's economy, and employment in construction occupations drops sharply during recessions.

Production occupations. Workers in these occupations perform tasks involved in the production of goods. They set up, adjust, operate, and tend machinery and equipment, and use handtools and hand-held power tools to fabricate and assemble products. More efficient production techniques such as computer-aided manufacturing and the increased use of lasers and industrial robots will prevent employment in many production occupations from rising as rapidly as the output of goods. However, there will still be many openings in this group because of its large size.

Many production occupations are sensitive to changes in the economy. When factory orders decline during economic downturns, workers may experience shortened workweeks, layoffs, and plant closings.

Transportation and material moving occupations. Workers in this group operate the equipment used to move people and materials. An increase in demand for transport services is expected to result in average employment growth for truckdrivers and faster than average growth for airplane pilots. Increased use of automated material handling systems, however, is expected to cause a decrease in employment of industrial truck operators.

Handlers, equipment cleaners, helpers, and laborers. Workers in this group assist skilled workers and perform the routine unskilled tasks. Employment in these occupations is expected to grow more slowly than the average as routine tasks are mechanized, but jobs in these occupations generally are expected to be plentiful due to high turnover. However, economic downturns can lower the number of openings substantially. This is particularly true for construction laborers and other workers in industries that are sensitive to changes in the Nation's economy.

Since the employment prospects for individual occupations within each of the 16 groups differ, it is important to check the outlook for each occupation that interests you. More detailed statistics on employment, replacement needs, and educational and training program completions are presented in *Occupational Projections and Training Data, 1986 Edition,* BLS Bulletin 2251, a companion volume to the *Handbook.*

Replacement Needs

Most discussions of future job opportunities focus on the employment growth in industries and occupations. Since the faster growing industries and occupations generally offer better opportunities for employment and advancement than slow-growing ones, employment growth is a good gauge of job outlook. Another element in the employment outlook, however, is replacement needs. Replacement openings occur as people leave occupations. Some transfer to other occupations as a step up the career ladder or to change careers. Some stop working, return to school, assume household responsibilities, or retire.

Through the mid-1990's, most jobs will become available as the result of replacement needs. Among occupations, however, the number of replacement jobs and the proportion of total job openings made up by replacement needs will vary significantly. Size, the earnings and status, the length of training required, the average age of workers, and the proportion of part-time workers determine the number of replacement jobs in an occupation. Occupations with the most replacement openings generally are large, with low pay and status, low training requirements, and a high proportion of young and part-time workers. Examples are: File clerks, cashiers, construction laborers, and stock handlers. Workers in these occupations who lose their job or leave voluntarily often are able to find a similar job. They also have not spent much money or time in training for their jobs, so there is limited incentive to stay in such occupations. Occupations with low training requirements often attract workers with limited attachment to the labor force, such as young people working part time.

The occupations with relatively few replacement openings, on the other hand, are ones with high pay and status, lengthy training requirements, and a high proportion of prime working age, full-time workers. Among these occupations are architects, dentists, and dental laboratory technicians. Workers in these occupations generally have spent several years acquiring training that often is not applicable to other occupations. These workers enjoy good pay and high status, but would find it difficult to change to other high-paying occupations without extensive retraining.

When considering replacement needs, it is important to note, first, that occupations with little or no employment growth or slower than average growth can still offer many job openings. Second, in many occupations with a large number of replacement openings, the pay and status are low. Many of the available jobs are only part-time positions. These occupations, therefore, may not be suitable for a person planning a long-term career, despite the large number of openings. More information about replacement needs is available in *Occupational Projections and Training Data*.

ON CHANGE, BY RACE, 1970 TO 1986, AND
87 TO 2000

ies (series 14). For explanation of methodology, see text,
1]

1)			RATE PER 1,000 MIDYEAR POPULATION				
ncrease		Net civilian immigration (1,000)	Net growth rate [1]	Natural increase			Net civilian immigration rate
	Deaths (1,000)			Total	Birth rate	Death rate	
	2,121	600	9.1	6.7	15.4	8.7	2.5
	2,141	595	9.0	6.6	15.3	8.7	2.4
	2,161	585	8.8	6.4	15.1	8.7	2.4
	2,180	575	8.5	6.2	14.8	8.7	2.3
	2,275	525	6.8	4.8	13.5	8.7	2.0
	2,368	500	5.7	3.8	12.6	8.8	1.9
	1,687	327	11.4	7.8	17.2	9.4	1.8
	1,661	173	7.8	4.7	13.6	8.9	.9
	1,739	431	8.1	5.9	14.8	8.9	2.2
	1,732	374	7.9	6.0	14.8	8.8	1.9
	1,729	334	7.8	6.1	14.8	8.7	1.7
	1,766	334	7.4	5.7	14.5	8.8	1.7
	1,782	334	7.3	5.7	14.5	8.8	1.7
3	1,816	352	7.5	5.7	14.7	8.9	1.7
7	1,830	346	7.1	5.4	14.3	8.9	1.7
5	1,838	363	7.3	5.6	14.5	8.9	1.8
0	1,854	358	7.2	5.5	14.4	8.9	1.7
2	1,872	350	7.0	5.3	14.3	8.9	1.7
5	1,888	340	6.7	5.1	14.0	9.0	1.6
4	1,966	296	5.0	3.6	12.7	9.1	1.4
2	2,038	273	3.8	2.5	11.7	9.2	1.2
'5	226	39	18.6	15.3	25.2	9.9	1.7
12	218	38	15.4	11.8	20.6	8.8	1.5
90	233	75	16.8	13.2	21.9	8.7	2.8
38	229	69	15.7	13.1	21.5	8.4	2.5
93	227	58	15.3	13.2	21.3	8.2	2.1
36	233	54	14.4	12.5	20.8	8.3	1.9
93	236	54	14.4	12.5	20.7	8.3	1.9
09	244	58	14.6	12.6	21.0	8.4	2.0
04	241	57	14.3	12.3	20.5	8.2	1.9
518	249	61	14.4	12.4	20.7	8.3	2.0
521	250	60	14.2	12.2	20.5	8.3	2.0
522	252	60	14.0	12.1	20.3	8.2	2.0
520	254	60	13.7	11.8	19.9	8.1	1.9
502	262	56	11.9	10.2	18.1	7.9	1.7
597	272	54	10.8	9.3	17.0	7.7	1.5

Armed Forces and includes for 1970–1980 "error of closure" (the the net change between censuses), for which figures are not shown
[3] Includes other races not shown separately.

orts, series P-25, No. 1006 and forthcoming report.

POPULATION BY AGE AND SEX: 1987 TO 2000

ction 1 for explanation of methodology. Data are for the middle series fetime births per woman), mortality (life expectancy in 2080) and 81.0 years, and 143,000 net immigration. These projections are not

POPULATION (1,000)					PERCENT DISTRIBUTION		PERCENT CHANGE	
8	1989	1990	1995	2000	1990	2000	1980–1990	1990–2000
33	**19,358**	**19,887**	**22,550**	**25,223**	**100.0**	**100.0**	**34.5**	**26.8**
98	2,242	2,282	2,412	2,496	11.5	9.9	36.2	9.4
63	4,690	4,825	5,555	6,207	24.3	24.6	21.0	28.6
56	2,369	2,387	2,511	2,767	12.0	11.0	5.3	15.9
27	3,585	3,629	3,717	3,804	18.2	15.1	42.1	4.8
15	2,651	2,788	3,430	3,803	14.0	15.1	74.9	36.4
28	1,594	1,668	2,165	2,811	8.4	11.1	39.3	68.5
25	1,156	1,183	1,342	1,619	5.9	6.4	50.1	36.9
37	670	707	894	1,041	3.6	4.1	53.0	47.2
85	402	419	525	678	2.1	2.7	64.3	61.8
729	13,090	13,453	15,322	17,419	67.6	69.0	37.8	29.5
117	9,681	9,947	11,285	12,627	50.0	50.1	34.9	26.9
416	9,678	9,940	11,265	12,596	50.0	49.9	34.2	[illegible]

Reports, series P-25, No. 995.

NO. 16. PROJECTIONS OF THE TOTAL POPULATION BY AGE, SEX, AND RACE: 1987 TO 2000

[As of July 1. Includes Armed Forces overseas. Data are for middle series. For explanation of methodology, see text, section 1. Minus sign (–) indicates decrease]

AGE, SEX, AND RACE	POPULATION (1,000)						PERCENT DISTRIBUTION		PERCENT CHANGE	
	1987	1988	1989	1990	1995	2000	1990	2000	1980–1990	1990–2000
Total population [1]	**243,827**	**246,048**	**248,251**	**250,410**	**260,138**	**268,266**	**100.0**	**100.0**	**9.9**	**7.1**
Under 5 years old	18,198	18,269	18,413	18,408	17,799	16,898	7.4	6.3	11.8	–8.2
5–17 years old	45,277	45,344	45,269	45,630	48,374	48,815	18.2	18.2	–3.4	7.0
18–24 years old	27,355	26,904	26,591	26,140	24,281	25,231	10.4	9.4	–13.9	–3.5
25–34 years old	43,513	43,861	44,024	43,925	40,962	37,149	17.5	13.8	16.7	–15.4
35–44 years old	34,371	35,321	36,548	37,897	42,336	43,911	15.1	16.4	46.5	15.9
45–54 years old	23,277	24,151	24,872	25,487	31,297	37,223	10.2	13.9	12.0	46.0
55–64 years old	22,005	21,799	21,544	21,364	21,325	24,158	8.5	9.0	–1.8	13.1
65–74 years old	17,646	17,873	18,129	18,373	18,930	18,243	7.3	6.8	17.4	–.7
75 years old and over	12,185	12,527	12,863	13,187	14,834	16,639	5.3	6.2	31.2	26.2
16 years old and over	187,955	189,810	191,451	192,989	201,018	210,134	77.1	78.3	11.9	8.9
Male, total	**118,939**	**120,054**	**121,159**	**122,243**	**127,123**	**131,191**	**100.0**	**100.0**	**10.2**	**7.3**
Under 5 years old	9,314	9,351	9,426	9,426	9,118	8,661	7.7	6.6	12.0	–8.1
5–17 years old	23,190	23,228	23,190	23,377	24,787	25,027	19.1	19.1	–3.2	7.1
18–24 years old	13,824	13,598	13,440	13,216	12,290	12,770	10.8	9.7	–13.8	–3.4
25–34 years old	21,846	22,032	22,126	22,078	20,579	18,662	18.1	14.2	17.8	–15.5
35–44 years old	16,980	17,466	18,094	18,785	21,104	21,945	15.4	16.7	47.7	16.8
45–54 years old	11,314	11,750	12,104	12,406	15,292	18,296	10.1	13.9	12.8	47.5
55–64 years old	10,356	10,273	10,170	10,103	10,149	11,557	8.3	8.8	–.8	14.4
65–74 years old	7,809	7,923	8,052	8,171	8,476	8,242	6.7	6.3	20.3	.9
75 years old and over	4,305	4,432	4,559	4,681	5,326	6,032	3.8	4.6	30.9	28.9
16 years old and over	90,333	91,255	92,070	92,834	96,834	101,392	75.9	77.3	12.4	9.2
Female, total	**124,888**	**125,995**	**127,092**	**128,167**	**133,016**	**137,076**	**100.0**	**100.0**	**9.7**	**7.0**
Under 5 years old	8,884	8,918	8,987	8,982	8,681	8,237	7.0	6.0	11.7	–8.3
5–17 years old	22,087	22,115	22,079	22,253	23,587	23,788	17.4	17.4	–3.7	6.9
18–24 years old	13,531	13,307	13,150	12,924	11,991	12,461	10.1	9.1	–14.0	–3.6
25–34 years old	21,667	21,829	21,897	21,848	20,384	18,487	17.0	13.5	15.7	–15.4
35–44 years old	17,391	17,854	18,455	19,112	21,233	21,966	14.9	16.0	45.4	14.9
45–54 years old	11,962	12,401	12,768	13,081	16,005	18,927	10.2	13.8	11.3	44.7
55–64 years old	11,648	11,527	11,375	11,260	11,175	12,601	8.8	9.2	–2.8	11.9
65–74 years old	9,837	9,949	10,077	10,201	10,454	10,001	8.0	7.3	15.1	–2.0
75 years old and over	7,881	8,094	8,304	8,505	9,507	10,607	6.6	7.7	31.3	24.7
16 years old and over	97,623	98,554	99,381	100,155	104,184	108,742	78.1	79.3	11.5	8.6
White, total	**206,190**	**207,696**	**209,178**	**210,616**	**216,820**	**221,514**	**100.0**	**100.0**	**7.7**	**5.2**
Under 5 years old	14,733	14,787	14,899	14,893	14,251	13,324	7.1	6.0	10.4	–10.5
5–17 years old	36,533	36,469	36,317	36,537	38,493	38,569	17.3	17.4	–6.3	5.6
18–24 years old	22,526	22,105	21,775	21,330	19,452	19,998	10.1	9.0	–16.7	–6.2
25–34 years old	36,543	36,749	36,798	36,620	33,680	29,988	17.4	13.5	13.6	–18.1
35–44 years old	29,530	30,251	31,223	32,306	35,635	36,574	15.3	16.5	44.1	13.2
45–54 years old	20,073	20,838	21,450	21,950	26,879	31,618	10.4	14.3	9.8	44.0
55–64 years old	19,377	19,138	18,852	18,637	18,327	20,667	8.8	9.3	–4.5	10.9
65–74 years old	15,804	15,983	16,188	16,380	16,681	15,811	7.8	7.1	16.1	–3.5
75 years old and over	11,071	11,375	11,675	11,965	13,421	14,965	5.7	6.8	30.2	25.1
16 years old and over	161,122	162,390	163,468	164,465	169,665	175,579	78.1	79.3	9.6	6.8
Male	100,918	101,689	102,448	103,184	106,365	108,774	49.0	49.1	8.0	5.4
Female	105,272	106,007	106,730	107,432	110,455	112,739	51.0	50.9	7.4	4.9
Black, total	**29,857**	**30,287**	**30,719**	**31,148**	**33,199**	**35,129**	**100.0**	**100.0**	**15.8**	**12.8**
Under 5 years old	2,744	2,769	2,806	2,814	2,790	2,748	9.0	7.8	13.7	–2.3
5–17 years old	7,020	7,082	7,095	7,170	7,697	7,895	23.0	22.5	2.5	10.1
18–24 years old	3,902	3,853	3,845	3,813	3,703	3,924	12.2	11.2	–5.4	2.9
25–34 years old	5,460	5,562	5,639	5,685	5,534	5,264	18.3	15.0	31.2	–7.4
35–44 years old	3,668	3,826	4,010	4,210	5,041	5,481	13.5	15.6	52.9	30.2
45–54 years old	2,492	2,558	2,620	2,686	3,261	4,106	8.6	11.7	17.4	52.9
55–64 years old	2,123	2,135	2,145	2,156	2,288	2,578	6.9	7.3	12.1	19.6
65–74 years old	1,516	1,545	1,576	1,608	1,762	1,848	5.2	5.3	19.0	14.9
75 years old and over	931	956	981	1,005	1,122	1,283	3.2	3.7	33.1	27.7
16 years old and over	21,239	21,592	21,920	22,226	23,860	25,708	71.4	73.2	19.2	15.7
Male	14,203	14,414	14,625	14,835	15,840	16,787	47.6	47.8	16.2	13.2
Female	15,654	15,874	16,094	16,313	17,359	18,342	52.4	52.2	15.4	12.4

[1] Includes other races not shown separately.

Source: U.S. Bureau of the Census, *Current Population Reports*, series P-25, forthcoming report.

Stat Abstract of US, 1988 ed

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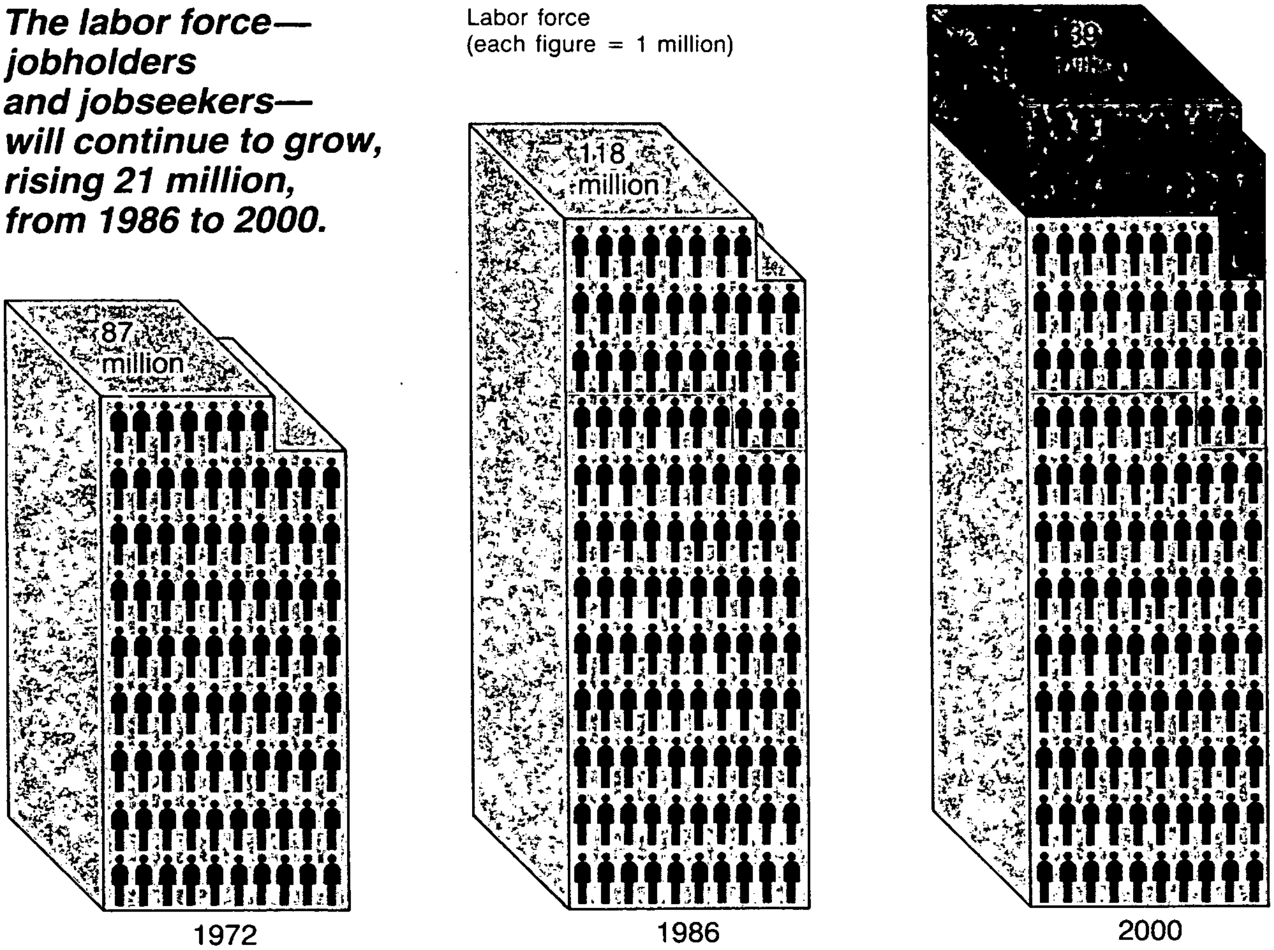
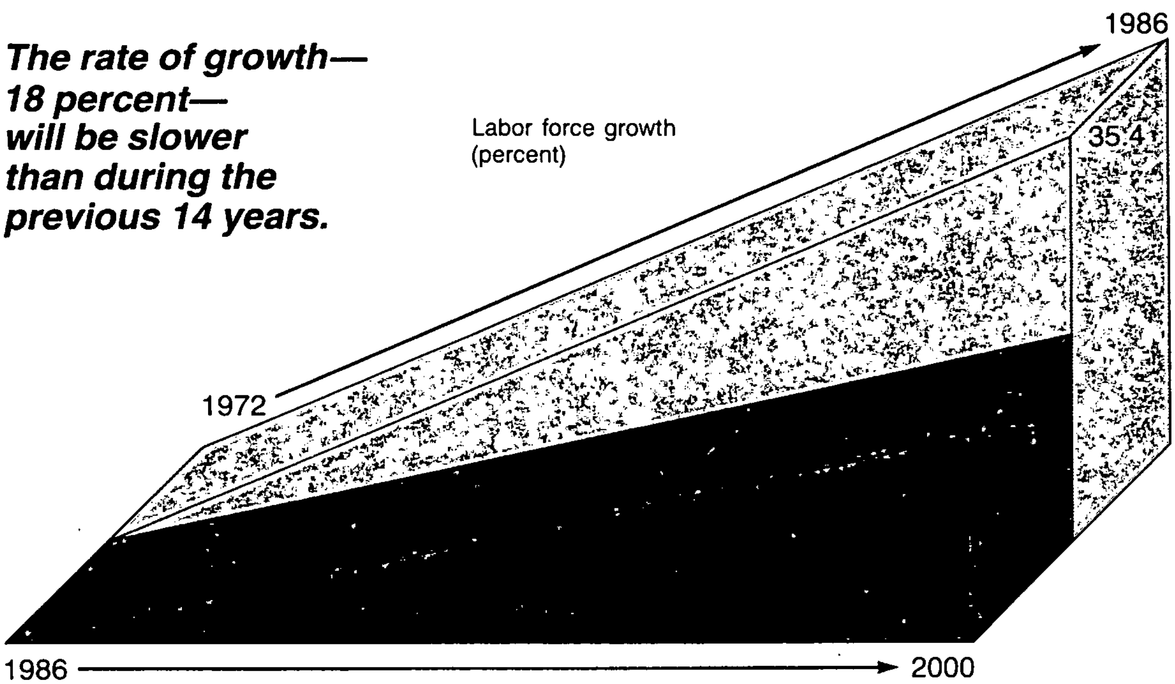
The labor force— jobholders and jobseekers— will continue to grow, rising 21 million, from 1986 to 2000.



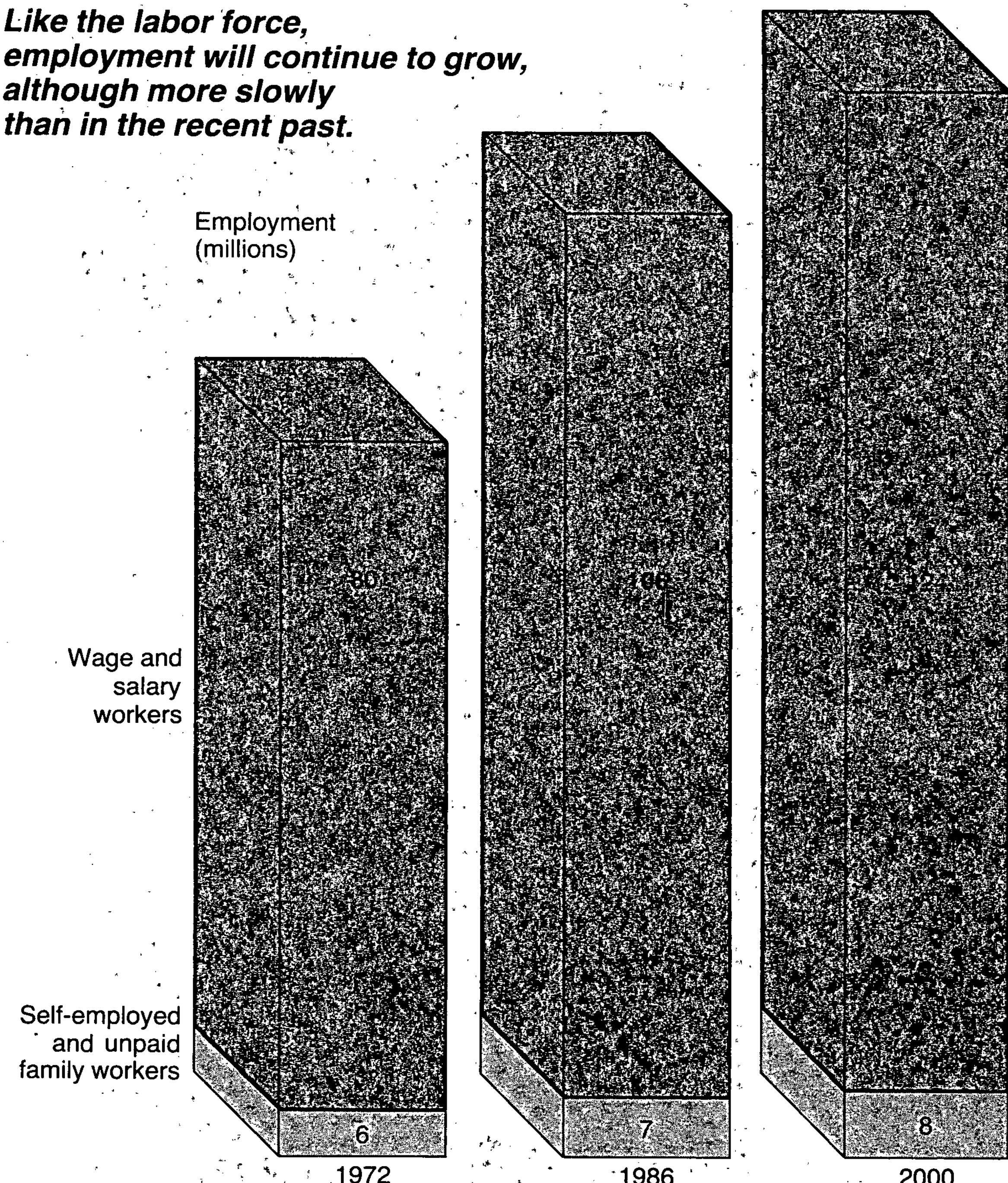
The rate of growth— 18 percent— will be slower than during the previous 14 years.



Growth will slow largely because population growth has slowed.

from NSA

Like the labor force, employment will continue to grow, although more slowly than in the recent past.

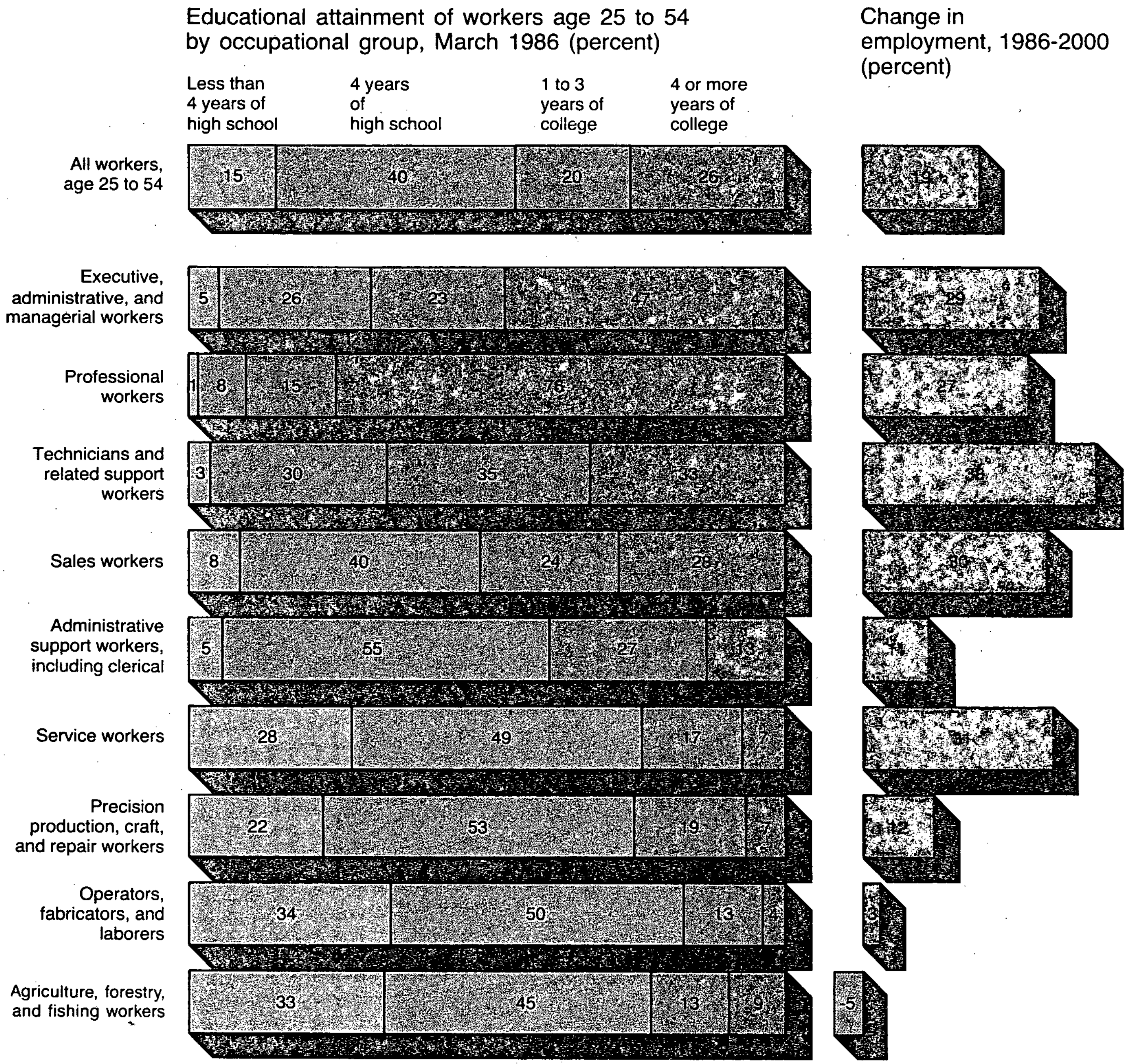


Employment will increase by 21 million, a rise of 19 percent.

Almost all of the employment growth will be in wage and salary jobs.

Between 1972 and 1986, employment growth was bigger numerically (27 million) and showed a larger percentage increase (32 percent) than is projected for 1986-2000.

The projected growth of the broad occupational groups shows the increasing need for education.



Occupations in which a large proportion of workers have college training are among the fastest growing.

Occupations in which a large proportion of workers have less than 4 years of high school are generally among the slowest growing.

from NSA

FACTS & TRENDS YOU CAN USE

CONGRESSIONAL CLEARINGHOUSE ON THE FUTURE FEBRUARY 26, 1988

UPDATE ON THE FUTURE OF WORK

Like all Facts and Trends briefs produced by the Clearinghouse, this one is designed to summarize forecasts and give quantitative evidence of emerging trends. In response to Members' requests, the Clearinghouse has also developed a brief which presents critiques of these forecasts. Unless otherwise noted, the data and forecasts cited below are from the *Workforce 2000* report, sponsored by the Department of Labor and written by the Hudson Institute in 1987.

TRENDS IN JOBS

Manufacturing will constitute an ever-smaller share of the U. S. economy. Manufacturing industries produced 30% of goods and services (GNP) in 1955, 21% in 1985, and will produce 17% by 2000.

Manufacturing jobs will decline 7% due to slow industry growth and an anticipated 30% increase in manufacturing productivity. There will be 2.2 million fewer jobs in manufacturing by 2000, only 14% of the U. S. total.

Actual production employment will fall even more sharply. Design, marketing, servicing, and other non-production jobs represent an increasing share of manufacturing output due to technological change and offshore manufacturing of U. S. products. Production wages' share of manufacturing output fell from 40% to 24% between 1949 and 1983. Production jobs will play a very small part in overall U. S. economic growth.

Services will generate most of the new jobs and most of the GNP growth between now and the year 2000. Service industries are expected to generate 75% of GNP growth from 1985 to 2000, slightly below these industries' share in the past decade.

Service jobs may be relatively sheltered from economic cycles. In the past three decades, service industries have never suffered a recession, enjoying annual growth rates between 0.9% and 5.7%. Manufacturing, however, has endured six years of recession in the same period, with growth swinging from -4.8% to 10%.

Service jobs and rising services productivity are now the key factor determining the future growth of the U. S. economy. Service industry productivity, now falling by 0.2% per year, will rise by an estimated 0.9% per year in the 1990s. Productivity increases will provide an estimated 40% of future service output and job growth. Without rising service productivity, the GNP growth estimate would have to be cut to 2% per year.

Rising productivity – especially in services – is necessary to protect U.S. jobs. Overall U. S. productivity is rising 0.7% per year now but must rise 1.5% annually in the 1990s – as fast as in the 1960s – if the growth forecasts cited above are to be achieved. Service industry output per worker was 10% less than for manufacturing in the 1950s and 1960s. In 1985, service workers produced about 30% less per capita than manufacturing workers.

U. S. manufacturing productivity has recently improved, but not enough. The annual rate of productivity increase rose from 2%, in the period from 1955 to 1970, to 2.9% for 1970-1985, and 3.8% for 1981-1986. But while U.S. manufacturing productivity rose 129% between 1950 and 1983, Canada's rose 215% and the manufacturing productivity of France, West Germany, and Japan rose 458%, 508%, and 1,624% respectively, including the war recovery. These countries' historic disadvantage in productivity has now become an advantage in a number of industries.

The cost picture for U. S. industry is improving but it will not produce a miracle cure for unemployment. U. S. unit labor costs declined 3% in 1982-1985, in comparison with a 2% increase for our major competitors. Further, the dollar fell 31% against major trading partners' currencies from 1985 to 1987 and is now about where it was in 1973. But there has been no significant improvement in the dollar's rate of exchange with the currencies of Canada and some important Third World countries.

Declining market share in older industries will accelerate the shift away from manufacturing jobs. American steel production fell more than 25% from 1975 to 1983, and the U. S.'s world market share fell from 16% to 12%. Auto production fell 22%, and the U. S. share of the world market fell from 27% to 17%.

The emergence of stronger competitors is evident even in domestic markets. The Japanese share of the U. S. auto market rose from 7% to 15% during the 1960s with a price advantage of about one-third. Prices for the two countries' autos were nearly equal by 1979, but the Japanese market share had risen to 22%. By 1983, Japanese auto prices were higher than those for U. S. cars, but Japan's market share still rose to 26%.

Some industries are not likely to recover even if economic conditions improve. For example, such major consumer electronics products as portable radios, VCRs, and compact disk players are no longer manufactured in the U. S. Some computer components are now manufactured only abroad.

The new jobs created in the next 15 years will require higher skills. Forty percent of today's jobs require only fairly low levels of reading, math, and specialized skills. But in the next 12 years, only 27% of new jobs will be at these same skill levels. Only 24% of jobs now require moderate to high skill, but in the 1990s, more that 40% of new jobs will demand moderate to high skills.

TRENDS IN THE AMERICAN WORKFORCE

The workforce will grow more slowly between now and the year 2000, reflecting population trends. The population increased almost three times as fast in the 1950s as it will in the 1990s. The labor force, reflecting 1950s birthrates, grew 2.9% per year in the 1970s but will expand by only 1% per year in 1990s, the slowest rate of increase since the 1930s. The U. S. population – still our primary market – will reach 275 million by the year 2000, an increase of 15% over 1985. This relatively short-term forecast is reliable but may be affected by medical advances, changes in fertility, and the spread of AIDS.

The workforce will be older, reflecting the lower birthrate of recent decades and the aging of the "baby boomers." Young, entry-level workers could be especially scarce. The average age of American workers is now 36 but will reach 39 by the year 2000, a significant increase. The median age of the population will rise from 30 to 36. Workers aged 16 to 24 will *decline* by two million or 8%, in marked contrast to the overall population increase of 15%. Workers aged 20-29 will decline from 41 million to 34 million between 1980 and 2000, from 18% to 13% of the population. Meanwhile, workers aged 35-47 will jump 38% and those aged 48-53 will soar 67%. The "Baby Boom" will not yet be at retirement age by the year 2000; for the next dozen years, the over-60 population will grow only slowly.

U. S. regions will suffer unequally as a result of past migration. Workers aged 20-34 will decline by 22% in the Midwest and Northeast but will increase by 8% in the West.

The workforce will be more female. Women will constitute two-thirds of new workers during the period from 1987 to 2000 and will be 47% of the total workforce by 2000, due to changing social mores and the economic pressures faced by two-earner and single-parent households. Sixty-one percent of married mothers worked in 1984, as compared with 28% in 1960. Fifty-two percent of children had working mothers in 1984, in contrast to 19% in 1960. Sixty-one percent of women will be in the workforce by 2000. The movement of women into the workforce may slow, especially if economic pressures abate or improved child care and flexible working hours are not provided: according to a recent Gallup poll, only 13% of working women with children want to work full-time. Sixty percent want flexible hours, and 16% don't want to work at all.

The workforce will be more Black and Hispanic. Minorities will constitute 29% of new workers from 1988 to 2000, as compared with 14% of all workers now. More than 15% of the total workforce will be Black and Hispanic by 2000, in contrast to 13% in 1985.

Immigrants will be an important source of scarce labor. Immigration to the U. S. will average 600,000 per year, and at least two-thirds of these new entrants will join the U. S. workforce.

THE IMPACT OF THESE CHANGES ON AMERICAN WORKERS AND EMPLOYERS

Population and job trends may lead to a shortage of young workers entering the labor force. Employers could be forced to adopt a range of strategies to meet the shortage: automation and other labor-reducing measures, policies designed to bring more women and immigrants into the workforce, and training programs for undereducated new workers and older workers displaced by the changing job market. (Other studies have focused instead on the possibility of increased labor costs or retrenchment in some industries due to the lack of qualified workers.)

Too many current and future workers could lack the skills needed for the new jobs that will be created. Based on current skill levels, Black men and Hispanics are likely to be hardest hit.

The shift to services may not reduce the size of the middle class and divide Americans into increasingly rich and poor populations. Service industry wages are less equally distributed than in manufacturing or government: Forty percent were in the lowest one-third (under $250/week of 1972 dollars) in 1983 in contrast to 30% in manufacturing and 22% in government. On the other hand, high-earning occupations (the one-third over $500/week) rose from 25% to 29% of the entire workforce from 1973 to 1982, while low-earning occupations dropped from 41% to 39%, so *occupations* are not shifting downward despite the trend to services.

The future of earning power looks somewhat better for women, but not for minority workers. Progress has been slow: in 1980, 32% of women were in occupations with 90% or higher concentrations of women, up slightly from 28% in such occupations in 1960. Full-time wages rose only from 63% to 67% of male wages from 1967 to 1983. The Rand Corporation forecasts an earnings ratio of 74% by 2000. But the number of high-paid women will increase. Black unemployment will remain high unless there is a major turnaround in the educational attainment of the poor. Current Black and Hispanic unemployment rates of 19.5% and 14%, respectively, are much worse than that of whites at 8.4%. Income and other measures tell the same story of reduced job opportunity.

9

INTO THE 21st CENTURY

Long-Term Trends Affecting the United States

Marvin J. Cetron, Wanda Rocha, and Rebecca Luckins

Those who were born in the early part of this century have seen scientific and technological developments unimagined by their parents. They look back on dramatic changes in the way people in the United States travel, communicate, work, and relax. They know that nothing short of a revolution has taken place. But these innovations will be dwarfed by what lies ahead in the coming decades.

What is perhaps even more startling than the changes that have already taken place is the lack of serious attention given to such basic questions as, "What will U.S. society look like in 20 or even 50 years?" or "Where will the jobs be?" or "What will the family look like?" The future, it seems, bears a striking resemblance to the weather in at least one respect: Everybody talks about it, but no one seems to be doing anything about it.

Advances being made in the fields of medicine, high technology, and genetic engineering are changing the course of human history and transforming the way Americans live. Some of the facts associated with these changes may not be pleasant — though we believe many more will be — but these facts need to be taken into account when planning for the future. If we understand what the long-term trends will be, we can act on them intelligently and creatively, using the best available data.

This list of 71 trends has been structured similarly to the trends listed in *Issues Management*, the book produced by Joseph Coates and the staff of J.F. Coates Inc. in 1986. We used the Coates structure for comparative purposes, but changed, modified, and/or adapted those trends to reflect our in-house database.

The most important area affecting America's future is education. The education trends we describe show where the United States is going in education, who the new actors are, and what the new educational technologies will be. But there remains much work to be done. It is imperative that the United States improve its education system to compete in the increasingly competitive and global economy.

There are areas other than education where the United States must also improve. Entrepreneurism must be encouraged and right-to-work laws should be established in every state. Sooner or later, the mandatory retirement age will have to be raised, as the average life-span increases to over 100 years in the next century. Women's wages will have to be brought up to equity with men's wages.

Finally, the United States must overcome the "bottom line" syndrome that pervades society, causing both government and citizens to set their sights on short-term profits at the expense of the nation's future. Being competitive through the next century is going to require intelligent long-term planning based on rational expectations. The United States just cannot do that if its thinking is dominated by tunnel vision and the motivation of making a quick buck.

Minds are like parachutes — they only work when they're open. The government and citizens of the United States are going to have to keep their mental parachutes wide open to respond effectively to the challenges that lie ahead.

We believe that the United States has a lot to look forward to. The curtain is just beginning to rise on a marvelous future.

GENERAL LONG-TERM SOCIETAL TRENDS

1. Ahead is a period of U.S. economic prosperity — affluence, low interest rates, low inflation rate

- There may be a recession in 1990, but this will only be a perturbation. Our long-range forecast for the U.S. economy is good.
- Per capita personal income increased 1.4% annually between 1973 and 1983; it is projected to increase at an average of 1.8% annually between 1983 and 2000.
- Part of society's affluence rests on credit-card use or overuse; extension of excessive credit could result in government-imposed limitations.

- Intolerably high interest rates in 1981 have resulted in "managed" (by the Federal Reserve Board) low interest rates.
- An intolerably high inflation rate in 1980 has resulted in monetary policies that tend to assure low inflation rates.

2. Rise of knowledge industries and a knowledge-dependent society

- About half of all service workers will be involved in collecting, analyzing, synthesizing, structuring, storing, or retrieving information as a basis of knowledge by the year 2000. Half of these people will be working at home.
- By 1995, 80% of all managers will be knowledge workers.
- There will continue to be vast opportunities within the computer industry for developers of hardware and software.
- Computer "expert systems" will issue reports and recommend actions based on data gathered electronically — all without human intervention. Investment in expert systems and related technologies should top $1.3 billion in 1988 — three times the amount in 1985.
- Computers will provide access to all the card catalogs of the world's libraries by the late 1990s. Readers will be able to call up millions of volumes from distant libraries on a PC screen. Videodiscs will enhance books by providing visual and audio information, even recording smells, tastes, and feels.
- Many encyclopedic works, large reference volumes, and heavily illustrated manuals will be more economical to produce and sell through electronic packaging, such as videodiscs.

3. Fewer very poor or very wealthy in U.S. society

- One in seven Americans is poor today, compared with one in five in 1960. If income from food stamps and government housing subsidies enters into the calculation, then only one in 10 Americans is poor today.
- Although between 1960 and 1986 the share of total income earned by the top two-fifths of families increased slightly, the new tax law will reverse this trend. Fewer tax loopholes (such as the oil depletion allowance, accelerated depreciation allowances, and alternate taxes for municipal bond income) mean the wealthy will pay more tax.
- The burden for poorer taxpayers will be eased.
- Blacks have suffered disproportionately from poverty in the past. They have made considerable progress over the years, leaving the ranks of the poor and joining the ranks of the middle class (33% of black families are middle class today vs. 13% in 1960).
- One-third of the elderly were destitute in the 1950s; today, the elderly's median per capita income is greater than that of the average American.

4. Rise of the middle-class society

- The median income for all U.S. families was $29,460 in 1987, well within the accepted bounds of the middle class ($25,000–$50,000). This represents a 50% increase (after inflation) over 1960.
- According to the Census Bureau, more families departing the middle class are moving up rather than down; families with $50,000 or more in annual income increased from 13% of the population in 1970 to 18.3% in 1985.
- The majority of families now depend on two incomes. Since families are having fewer children, this greater disposable income translates into greater economic well-being, since it is divided among fewer people.
- Income is buying more than in the past. The average U.S. citizen has twice the buying power today as in 1952.

5. Urbanization and suburbanization of rural land

- Land in farms has decreased steadily since 1959 (1% per year, 1975–1985).
- The greatest land development is taking place in suburbs near rural properties; land there is cheaper than in cities, and road systems provide good accessibility.

6. Cultural homogenization — the growth of a national society

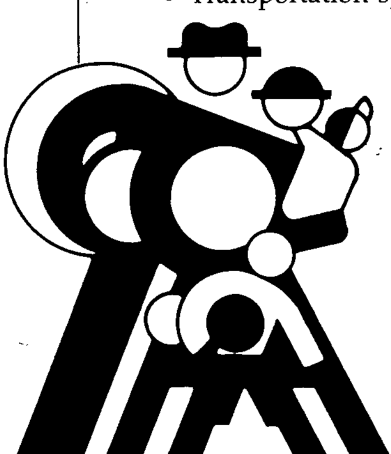
- What we see and hear is a leveling influence — we see the same movies and TV programs.
- Schools teach essentially the same thing across the country.
- Intermarriages tend to mix cultures ethnically and geographically.
- U.S. citizens will travel more (9% per year increase in common-carrier passenger miles for all modes from 1981 to 1985). This is due in part to better roads (especially the interstate system), more accommodations, more leisure time, and greater affluence.

7. Continuation of a permanent military establishment

- The number of active-duty military personnel has grown from 1.4 million to 3.6 million since World War II.
- Smart weapons may tend to reduce military personnel requirements.
- Compulsory national service (two years, male and female) is likely by the year 2000, with three options: military service, VISTA-type (work with disadvantaged), or Peace Corps.

8. Mobility: (A) personal, (B) physical, (C) occupational, (D) job

- Between 1980 and 1985, 41.7% of the U.S. population moved.
- Dual-career families, perhaps working in different cities, will affect personal mobility.
- Transportation systems are available and accessible to all.



- Occupation mobility will increase as more people retrain for new careers.
- Job mobility, i.e., changing location or firm but doing the same work, will increase.
- There will be a continued movement of jobs to Sunbelt states, right-to-work states, or near large bodies of water.

9. International affairs and national security as a major societal factor

- More international travel for business and pleasure.
- More foreign student exchange programs/participation.
- More East–West observation/verification activity, e.g., NATO observers at Warsaw Pact games (and vice versa), at missile bases, and at manufacturing facilities.
- More East–West cultural exchanges.
- More East–West television and radio satellite hookups.
- Growing influence of regional political and economic arrangements (such as EEC, OAS, ComEcon).

TECHNOLOGY TRENDS

10. The centrality and increasing dominance of technology in the economy and society

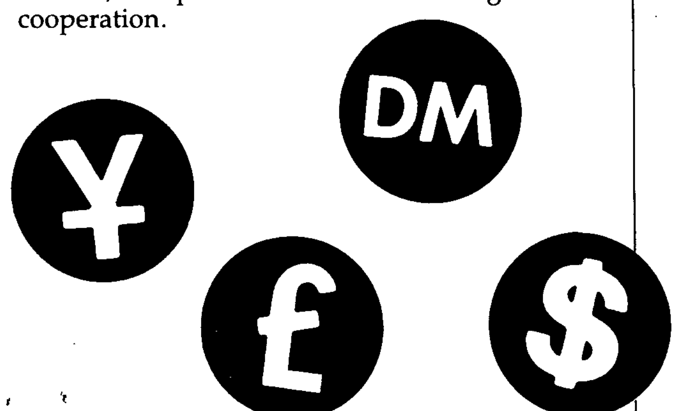
- Look for a high technological turnover rate (see trend #15).
- Many technological advances (computers, robots, CAD/CAM) will directly affect the way people live and work.
- By 2001, artificial intelligence will be almost universally used by companies and government agencies to help assimilate data and solve problems.
- By 2001, expert systems will be in universal use in such areas as manufacturing, energy prospecting, automotive diagnostics, medicine, insurance underwriting, and law enforcement.
- Superconductors operating at room temperature will be in commercial use by 2001, as will superconductors the size of a three-pound coffee can, electric motors 75% smaller and lighter than those of today, practical hydrogen-fusion power plants, electrical storage facilities with no heat loss, analyzers that can chart the interaction of brain cells, and 200-miles-per-hour trains that float on magnetic cushions.
- "Wireless hookup" will simplify relocation of personnel, minimize delays in accomplishing new installations, and make it possible for terminal equipment to travel with the individual, rather than vice versa.
- There will be much growth in the engineering, technology, and health industries; many new biotechnology jobs will open up.

11. Integration of the U.S. economy

- Balanced-budget efforts will force tradeoffs to be made across programs, e.g., a space shuttle vs. food stamps vs. aid to education.
- Under a new administration, there will be defense vs. social program tradeoffs.

12. Integration of the national with the international economy

- Thirty-nine percent of parts used in U.S. manufacturing are from a different country of origin; 37% of parts used by IBM are imported. This trend isn't limited to the United States — Japan must sell internationally to offset energy and other scarce resource imports.
- Nationalistic self-interest will continue to yield to international trade cooperation. Both developing and developed countries will focus less on dominating economic competitors and, instead, will put efforts into liberalizing trade cooperation.



13. Growth of the international economy

- Much interaction among the world's stock exchanges.
- The quality of products and services will increasingly be emphasized.

14. The growth of research and development as a factor in the economy

- R&D outlays as a percent of the gross national product have been rising steadily since

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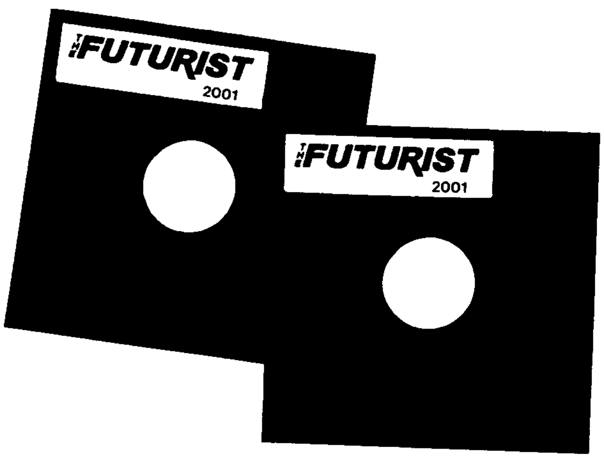
1978. These outlays are growing most rapidly in the electronics, aerospace, pharmaceuticals, and chemical industries.

- There will be more emphasis on long-term gains vs. short-term ("quick buck" or "bottom line") gains.

15. High technological turnover rate

- The interval between ideas, invention, innovation, and imitation (the time between basic research and application) is steadily decreasing; successful products must move from technology to market very quickly.
- New production technologies will continue to be rapidly adopted.



16. The development of mass media in telecommunications and printing

- Telecommunication removes geographic barriers; satellite-transmitted data can be set into a computer and transmitted back from anywhere on earth — often at a far lower cost than if the same work was done in the United States.
- Currently, 57% of U.S. homes have cable TV; that proportion will reach 87% by 1992.
- Magazines in the year 2001 will be on floppy disk, allowing readers to interact, play with, and manipulate the information on their PCs.
- Mass media will be more personalized as consumers use pay-to-view television to select their entertainment. Viewers will download their choices from a teledelivery service, paying for the program when they want to see it.
- A theater network will offer satellite-transmitted movies and other events for the affluent (who represent the upper 2% of the population and spend 28% of domestic disposable income).
- Racing fans will watch races from their homes via cable TV, placing their bets through handheld portable betting terminals connected to the track's on-line computer network. Winnings will be automatically credited to the bettors' bank accounts; losers' bank accounts will be debited. Obviously, the Internal Revenue Service will be automatically informed.

17. Major medical advances

- One hundred billion dollars will be spent on genetic engineering by the year 2000, on such things as artificial blood, human growth hormones, memory-recall drugs, and disease immunities for newborns.
- Technology will make possible organ transplants, artificial organs, genetic engineering, etc., but will raise ethical/moral issues, such as surrogate motherhood, how to equitably distribute capabilities, and when to terminate extraordinary life-support efforts.
- New computer-based diagnostic tools will provide doctors with unsurpassed cross-section images of soft and hard tissues inside the body, thus eliminating much exploratory surgery.
- "Bloodless surgery" using advanced lasers will decrease patient trauma, decrease the length of hospital stays, and help lower medical costs.
- Brain cell and tissue transplants to aid victims of retardation and head trauma will be in the experimental phase by 2001. Heart repairs will be done using muscles from other parts of the body. Transplanted animal organs will find their way into common use in humans. Laboratory-grown bone, muscle, and blood cells will be used in transplants.
- Pacemakers will be made with internal defibrilators built in (like the electric paddles in the emergency room that are placed on a patient's chest to restart the heart).
- Look for more and better bionic limbs and hearts, drugs that prevent disease rather than merely treat symptoms, and a corporal monitoring mini-laboratory that can detect, intervene, and treat to maintain homeostasis within the body.
- By the year 2000, 53% of drugs prescribed will be generic.

EDUCATIONAL TRENDS

18. Expanding education and training throughout society

- Democrats, as well as many Republicans, advocate greater federal spending for education. An annual $5-billion increase in federal spending is needed for programs such as the Head Start preschool program, federal aid for disadvantaged children, Jobs Corps, and the Job Training Partnership Act.
- The half-life of an engineer's knowledge today is five years.
- In 10 years, 90% of what an engineer knows will be computer-related.

• Eighty-five percent of the information on National Institutes of Health computers is upgraded every five years.

• The rapidly changing job market, along with the changing requirements of new technologies, will necessitate increased training across the board. Up to 4% of the labor force will be in job retraining programs by the 1990s.

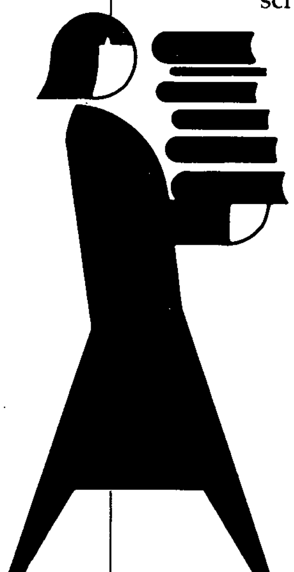
• Because of fundamental changes in the economy, there will be fewer and fewer well-paying jobs not requiring advanced training.

• Close to 6 million jobs will open up in the next decade in highly skilled occupations — executive, professional, and technical.

• Schools will be used to train both children and adults. The academic day will be lengthened to seven hours for children; adults will work a 32-hour workweek and prepare for their next job in the remaining hours.

• State, local, and private agencies could play a greater role in training by offering internships, apprenticeships, pre-employment training, and adult education.

• Professional alliances between high school and college faculties will grow.



19. New technologies will greatly facilitate the training process

• Job simulation stations — modules that combine computers, videodiscs, and instrumentation to duplicate work environments — will be commonly used in training.

• Computer models will aid in the training of medical personnel and will provide alternate choices in diagnosis and treatment of patients in the future.

• Telecommunications will allow coursework to be shared with another school district or students in another state or country, opening up new vistas in education.

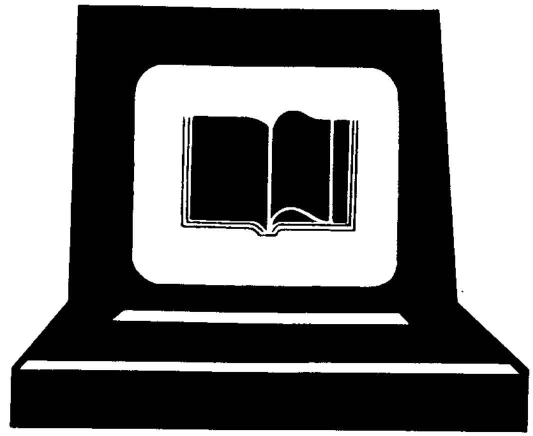
• Education will become more individualized as new media such as interactive computers and videodiscs permit students to learn according to their needs and abilities.

• Personal computers with ultra-high-resolution screens, 3-D graphics, high-level interactivity, and artificial intelligence will enhance the gaming and simulations used in education and training.

20. Greater role of business in training and education

• More businesses will be involved in schools, job-training programs, and community source programs. The investment of corporations in employee education and retraining — now some $80 billion a year — will double by 2001. And the Job Training Partnership Act allows greater communication between those who need jobs and those who need workers by calling on private business to help direct the training of unemployed workers.

• One-half of all funding for formal training will come from 200–300 large companies in business and industry; however, most new jobs will be generated by small businesses that cannot afford to pay for training.



21. Education costs will continue to rise

• Heavy pressure to control costs will emerge.

• Two-year colleges and associate degrees will grow.

• Loans rather than grants will constitute the main source of student financial aid.

22. Educational institutions will be more concerned with ways to assess outcomes and effectiveness of educational programs

• Greater emphasis will be placed by the public and the legislatures on the outcomes of public education.

• Faculty will support efforts to assess their classroom performance and effectiveness.

• Academic departments will support assessment of their programs' results and effectiveness.

23. Improved pedagogy — the science of teaching — will revolutionize learning

• Institutions will increasingly apply the growing knowledge about individual cognition to educational situations.

• The learning environment will not be as important in the future. Individuals will learn more on their own, the "places" of learning will be more dispersed, and the age at which things are learned will depend on the individual, not on tradition.

• Computer-supported approaches to learning will improve learning techniques and will allow a greater amount of material to be learned. Overall learning time may be reduced by one-sixth.

- Alternative testing approaches will be widely used for better feedback.

24. Universities will stress development of the whole student and how the university's total environment affects that development

- Faculty will receive greater support from the administration for class-related activities.
- Individual students will receive more support from faculty and advisors on decisions about academic programs and career paths.

25. Reduction in size of higher education institutions

- Private commercial ventures will establish themselves as the proprietors of large electronic databases, eventually replacing the university library.
- Students will adopt the "scholarship" mode of learning: They will learn by consulting books, journals, etc., as professors and Ph.D. candidates do today.
- College and university instructors will find employment at secondary schools, in business-based education programs, and in producing educational electronic software.
- More and more businesses are conducting research for themselves, rather than turning to universities.

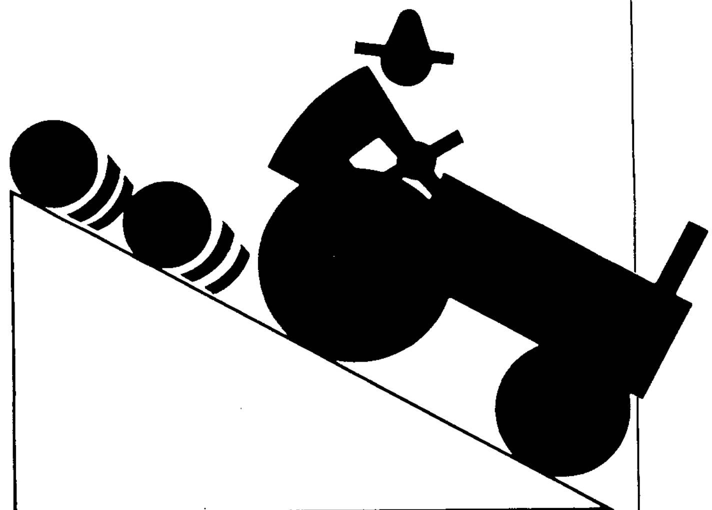
TRENDS IN LABOR FORCE AND WORK

26. Specialization

- Within professions (medical, legal, engineering, etc.), the body of knowledge that must be mastered to excel in a particular area will preclude excellence in all areas. The same principle will apply to artisans, too — auto mechanics, house builders, etc.
- The information-based organization will be dependent upon its teams of task-focused specialists.
- The globalization of the economy will call forth more independent specialists; for hundreds of special tasks, corporations will turn to consultants and independent contractors who will become more and more highly specialized.

27. Growth of the service sector

- The service sector has shown steady growth as a portion of the labor force. In 1984, it accounted for 72.2% of the labor force; the Bureau of Labor Statistics expects that number to rise to 73.5% by 1990 and 74.4% by 1995. We estimate that the service sector will account for 88% of the work force by the year 2000.
- Low-paying service jobs have replaced many well-paying jobs lost in manufacturing, transportation, and agriculture. Often part-time, these service jobs pay wages at half the level of manufacturing jobs.
- Approximately 1 million new jobs will be created in the less-skilled and laborer categories in the next decade.



28. Further decline of the manufacturing sector

- Between 1979 and 1985, 1.7 million manufacturing jobs disappeared.
- The agriculture and mining sectors will continue to decline as a percent of the labor force. In 1970, they employed 4.6% of the labor force; by 1984, this figure had fallen to 3.7%. The Bureau of Labor Statistics estimates that this number will drop to 3.3% by 1990 and 3.0% by 1995.
- Construction and manufacturing jobs are declining as a proportion of the labor force. According to the Bureau of Labor Statistics, in 1984 construction and manufacturing jobs accounted for 24% of the work force; BLS expects this number to shrink to 23.2% by 1990 and 22.6% by 1995. We think the figures for manufacturing are too high, and we anticipate that manufacturing jobs will account for only 9% of the labor force by the year 2000.
- By 2001, manufacturing productivity will have increased 500% in those industries that have become more automated, added robotics, and remained flexible in their production.

29. Growth of information industries, movement toward an information society

- Information will be the primary commodity in more and more industries.
- Computer competence will approach 100% in U.S. urban areas by the year 2000.
- Seventy percent of U.S. homes will have computers in 2001, compared with 18% today;

more than three-fourths will be equipped to permit communication via a network.

- Computers in the home mean that we will have vast new powers over information and services. These increased powers will affect education, work, health care, shopping, banking and finance, etc.
- Interactive cable television will allow electronic shopping and electronic banking from home.
- Personal computers will be used for voting, filing income tax returns, applying for auto license plates, and taking tests such as college entrance exams and professional accreditation.
- Five of the 10 fastest-growing careers between now and 2001 will be computer-related, with the demand for programmers and systems analysts growing by 70%.
- The Integrated Services Digital Network (ISDN), an internationally agreed standard means of linking public and private networks, will change the economics of data transmission and acquisition by allowing data to be transmitted in its digital form without the expense of signal processing done by modems. This will bring data capability to the relatively small user by 2001, providing access to databases (real estate listings, inventory, financial information) at much less cost and over much greater distances.

30. More women will enter the labor force

- Approximately 63% of new entrants into the labor force between 1985 and 2000 will be women.
- Child-care facilities/services will grow rapidly.
- An increasing volume of work will be done at home.
- Most families will need income from both spouses.
- Females made up 31.4% of the labor force in 1950; by 1986, that number had grown to 54.7%. The Bureau of Labor Statistics projects that number will grow to 55.5% by 1990 and 59.9% by the year 2000.
- Businesses will seek to alleviate labor shortages with former stay-at-home mothers by offering child-care programs and job sharing.

31. Women's salaries will be comparable to men's

- Women's salaries averaged only 61% as much as men's salaries in 1960, but the figure has increased steadily. By 1986, women's salaries were 70% as much as men's; we think this figure will increase to 85% or more by the year 2000.
- Historically, women's salaries in California and north of the Mason-Dixon Line have been higher (currently, 87% as much as men's salaries, as opposed to 55% as much as men's salaries in the South).

32. More blacks and other minority groups will enter the labor force

- Black workers made up 10.7% of the civilian labor force in 1985, up from 9.9% in 1975; by 1990, that number will have risen to 11.1%, reaching 11.5% by 1995.
- Hispanic workers made up 6.7% of the civilian labor force in 1985, up from 5.7% in 1980; that number is expected to rise steadily.

33. Later retirement

- Life expectancy is increasing.
- The mandatory retirement age will rise to 70 by 2000.
- The military retirement age will be raised.
- The civil service retirement plan will be converted to Social Security.

34. Decline of unionization

- Union membership as a percent of employed workers shrank from 28.9% in 1975 to 18% in 1985. Estimates are that union members will make up less than 10% of the U.S. labor force by 2000.
- There will be a continual shift of jobs to no-union states or right-to-work states.

35. Growth of pensions and pension funds

- Private pension and government retirement funds rose from 4.2% in 1970 to 6.3% of all institutional assets in 1985, and the proportion is increasing.
- There will be more people in the labor force for a longer period.

36. Movement toward second and third careers and midlife changes in career

- People will change careers, on average, every 10 years.
- A lack of commitment to one specific job is illustrated by the results of a recent poll: Only 39% of workers say they intend to hold the same job five years from now.

37. Decline of the work ethic

- Tardiness is increasing, and sick-leave abuse is common. In contrast, two-thirds of Americans would like to see an increase in the number of hours they work, rather than working shorter hours — if they were paid for those extra hours.
- Job security and high pay are not the motivators they once were, because there is a

high degree of social mobility and because people now seek job fulfillment; in a poll, 48% of workers say they work because it "gives a feeling of real accomplishment."

- Fifty-five percent of the top executives interviewed in a recent poll say that erosion of the work ethic will have a major negative effect on corporate performance in the future.

38. More two-income couples

- Two-earner couples, as a percent of all married couples, have risen from 28.5% in 1960 to 49% in 1985. The number will reach 52% by 1990, 54.6% by 1995, and 56.6% by 2000.

39. Shortage of low-wage workers

- The decline in the birth rate in the 1960s and early 1970s means a smaller number of young people entering the job market today. This has created an entry-level labor shortage that will worsen in the 1990s, especially in the service sector, which could translate into more entry-level job opportunities for high-school graduates, as companies train them on the job.
- Institutions of higher education, business, and the military will all vie for youths 16–24 years old, as that population group shrinks from 30% of the labor force in 1985 to 16% in the year 2000.
- The military has seen the education levels of recruits drop as competition from the private sector intensifies.
- Untapped low-wage worker resources include the retarded, the handicapped, and stay-at-home mothers.
- Businesses will increase automation and will seek to attract more foreign workers.
- Hotels, restaurants, fast-food places, convenience stores, and other businesses needing workers with beginning computer and clerical skills will be especially hard hit by this labor shortage. Restaurants may turn to more self-serve items.

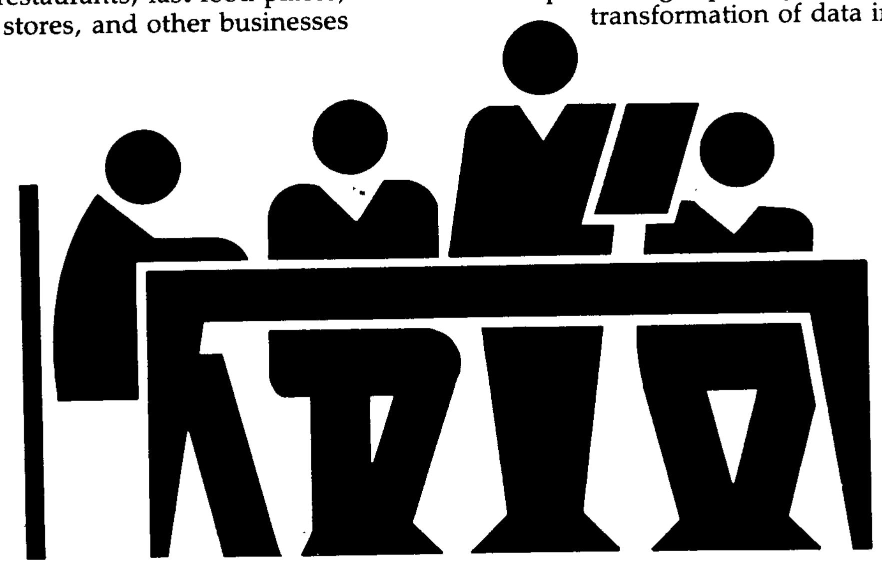
MANAGEMENT TRENDS

40. More entrepreneurs

- The number of self-employed people in the United States increased 24% from 1974 to 1984 and is growing at four times the rate of salaried workers.
- Between 1950 and 1970, the number of new business incorporations jumped from under 100,000 to over 300,000 annually; in 1984, the number of new business start-ups hit a record 600,400.
- More and more mid-career professionals will become entrepreneurs as they are squeezed out of the flattening management pyramid in large companies. In 2001, only one person in 50 will be promoted to top management; in 1987, the number was one person in 20.
- During the decade from 1970 to 1980, small businesses started by entrepreneurs accounted for most of the 20 million new jobs created. By the year 2000, 85% of the labor force will be working for firms that employ fewer than 200 people each.

41. The typical large business will be information-based, composed of specialists who guide themselves based on information from colleagues, customers, and headquarters

- Decision processes, management structure, and modes of work are being transformed as businesses take the first steps from using data to using information (data that has been analyzed and diagnosed). The advent of data-processing capability has allowed this transformation of data into information.



• Information-based organizations require more specialists who will be found in operations, not at corporate headquarters.

• Upper management will clearly state performance expectations for the organization, its parts, and its specialists, and managers will supply the feedback necessary to determine if results have met expectations.

42. The typical large business in 2010 will have less than half the levels of management of the typical large business today and about one-third the number of managers

• With major firms "trimming the fat," the management pyramid will be flattened, with the specialists on the bottom and upper-level managers on top. The number of workers under each manager will increase from six or seven to 21.

• Middle management will all but disappear as information flows directly up to higher management for analysis.

• Computers and information-management systems will enable managers to control more functions, eroding the role of mid-level managers.

• Opportunities for advancement will be few, because the opportunities will come within the narrow specialty. The process of finding top managers will be extremely difficult.

• There will be a greater need to prepare professional specialists to be business executives and business leaders in the information-based organization than in the typical business today.

• The values and compensation structure of business will have to change radically as a consequence of all these changes.

43. The command-and-control model of management will be a relic of the past as the information-based organization becomes the norm

• Manual and clerical workers will continue to be replaced with knowledge workers. Information technology is the driving force behind this phenomenon.

• Management styles will shift toward more participation by workers on a consultative basis.

44. The actual work will be done by task-focused teams of specialists

• The traditional department will assign the specialists, set the standards, and serve as the center for training.

• Research, development, manufacturing, and marketing specialists will work together as a team on all stages of product development, rather than keeping each stage separate and distinct.

TRENDS IN VALUES AND CONCERNS

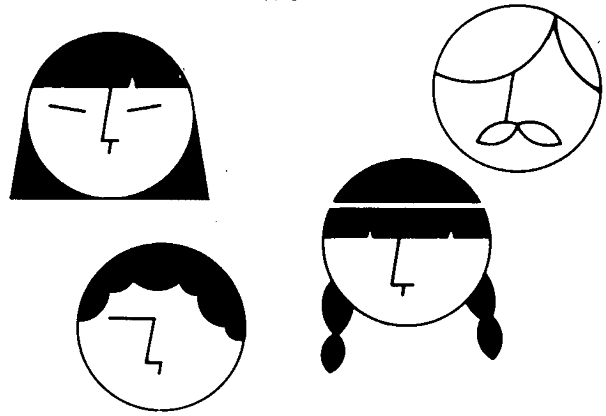
45. General shift in societal values

• The shorter workweek is coming: Sweden's workweek is now 36 hours, West Germany's is 37 hours, headed for 35 hours.

• We used to live to work; now we work to live.

• The old "family" ethic has evolved into the "me" ethic.

• Fears of "conception, infection, detection" used to inhibit sexual conduct. Infection as a fear (e.g., herpes, AIDS) still stands, but the others have fallen, especially the social stigma associated with "detection."



46. Diversity as a growing, explicit value

• The old idea was to conform, to blend in with the group. This is giving way, especially among minorities, to pride in cultural heritage and a general acceptance of differences in all aspects of society.

47. Increasing aspirations and expectations of success

• There will be a continued high emphasis on economic success.

• There is a growing number of entrepreneurs who illustrate this drive to succeed.

• The aspirations will be there, but the means may not; only 25% of those who graduate from high school go on to graduate from college. Without higher education, expectations may never be met; in 1986, male high-school graduates not enrolling in college were earning an average of 28% less in constant dollars than a comparable group in 1973.

• There is a growing number of young people who report no earnings. Seven percent of all 20- to 24-year-old men reported no earnings in 1973; that number climbed to 12% by 1984.

48. Growth of tourism, vacationing, and travel (especially international)

• There will be more leisure time available and more disposable income, especially for two-earner families.

- The number of international travelers in and out of the United States increased at a 1.3% rate per year from 1981 to 1985.
- The number of U.S. travelers to foreign countries increased at a 5% rate per year from 1981 to 1985.
- By 2001, air travel for both business and pleasure will be twice the 1985 rate.
- Tourism will be spurred as printed brochures are replaced by videos as a source of information about vacation destinations. Programs will include current, detailed information on accommodations, climate, culture, currency, language, and immunization and passport requirements.
- One out of every 10 people in the United States will be working for the hospitality industry by the year 2000.

49. General expectations of a high level of medical care

- Catastrophic health care insurance plans will be approved by 1990.
- By 2000, 83% of doctors will be salaried; this will make medical care less costly to the average person.
- There will be more nurses available for community-based health care; salaries for nurses will rise.
- Physician assistants will be able to prescribe drugs in 38 states by the year 2000; 17 states grant this authority now.
- Pharmacists will be able to prescribe drugs in 17 states by the year 2000; only one state (Florida) grants this authority now.
- Medical costs will rise more slowly by 2000; drug costs will decrease as more generic drugs are used.
- More, smaller medical outlets (surgi-centers, Doc-in-the-Boxes, etc.) will make high quality medical services available at the local level and for less cost.
- Contrary to some predictions, there will be a surplus of 100,000 physicians by 2001. The result: Doctors will pay closer attention to individual patient care, and office hours will be extended to evenings and weekends.
- Families will receive much medical information via home computers; prescriptions will be written, transmitted, and filled via computer.
- By 1990, private organizations such as Allied Respiratory Care in Miami, Florida, and similar organizations in New York, Pennsylvania, and Ohio will care for over half of AIDS patients at home and others in special AIDS wings in hospitals.

50. Growth of physical culture and personal health movements

- The emphasis on preventive medicine will grow. By 2001, some 90% of insurance carriers will expand coverage or reduce premiums for policyholders with healthy lifestyles.
- Personal wellness, prevention, and self-help will be the watchwords for a more health-conscious population. Interest in participant sports, exercise equipment, home gyms, and employee fitness programs will create mini-boom industries.
- People will be more inclined to take steps to reduce stress as they realize that 80%–90% of all diseases are stress-related.
- Americans today eat lighter fare than in 1976, annually consuming 15 pounds more chicken, a pound more fish, and 22 gallons more low-fat milk per capita.

51. General expectations of a high level of social service

- The Social Security system has adequate income to remain solvent — if the retirement age is raised to 70.
- Look for more services/accommodation for the deaf, blind, disabled, poor, infirm, and aged.
- By the year 2000, $50 billion will be spent in the United States for AIDS research and treatment. Every taxpayer will be paying $500 a year to care for AIDS patients in the year 2000.

52. Growth of consumerism

- There will be more consumer agencies and organizations.
- Consumer information (e.g., unit pricing, content labels, etc.) will proliferate via packaging, TV, and special studies and reports.
- With a wealth of information, consumers will become smarter buyers, changing purchasing and consumption patterns.

53. Growth of women's liberation movement

- Women will have greater employment opportunities. "Old girl" networks will become increasingly effective as women fill more positions in middle and upper management.
- Women will exercise more political power, with the effect being more child-care services and more equal male–female pay rates.
- One indication of the growing dependence on wives' incomes: Life-insurance companies are selling more policies to women than to men.

FAMILY TRENDS

54. Decline in birth rates

- The birth rate per 1,000 population has steadily declined. In 1950, it was 24.1; that number shrank to 15.7 in 1985 and will shrink further to 13 by the year 2000.

55. Increase in rates of family formation and marriage

- While the marriage rate for men and women has grown smaller (shrinking from 140.2 marriages per 1,000 unmarried women, 15–44 years old, in 1970 to 99.0 marriages per 1,000 unmarried women in 1984), fear of AIDS may turn this decline into an increase.

56. Decrease in the number of divorces

- The divorce rate, after a period of steady growth, has begun to decline, dropping from 22.6 divorces per 1,000 married women in 1980 to 21.7 divorces per 1,000 married women in 1985. Fear of AIDS may cause a further decline.

57. Growth of leisure

- Automation, robotics, and computer applications in manufacturing will result in a shorter average workweek of 32 hours, meaning more leisure time.
- Both spouses working plus a smaller tax bite mean more disposable income to spend on leisure activities.

58. Growth of the do-it-yourself movement

- The high cost of hiring outside workers will motivate people to do more work themselves.
- There will be more leisure time available to spend on do-it-yourself projects.
- The availability of more tools and supplies aimed at the do-it-yourself market will spur this movement.

59. Improved nutrition and the wellness movement will increase life expectancy

- The average child born in 1986 will live to be 74.9 years old (average male — 71.5 years old; average female — 78.5 years old).
- Since the turn of the century, every generation lives three years longer than the last.

60. Isolation of children from the world of adult concerns

- There is an intensifying movement toward overprotecting children from the outside world and the consequences of their acts.

61. Protracted adolescence

- The median age at first marriage of both males and females is steadily rising. For males, the median age at first marriage rose from 22.5 in 1970 to 24.4 in 1983; for females, the median age at first marriage rose from 20.6 in 1970 to 22.5 in 1983.

62. More single heads of households — the new poor

- As a percent of all households, single males and females heading households rose from 10.7% in 1960 to 14.3% in 1986.

63. Growth of the already large aged population

- The percentage of U.S. citizens aged 65 and older grew from 16.7% in 1960 to 28.5% in 1985.
- The percentage of U.S. citizens aged 85 and older grew from 0.9% in 1960 to 2.7% in 1985.

64. The replacement of the extended family with other living arrangements

- More older people will retain their mobility and independence.
- Older people's families may live near, but not next-door.
- Prefabricated (manufactured) housing will be cheaper than conventional construction, enabling older persons to afford housing where they want to live.

INSTITUTIONAL TRENDS

65. Decrease in the size of the federal government — growth of state and local governments

- The number of paid, full-time federal civilian employees is declining. In 1975, there were 2,582,000 federal employees; that number fell to 2,004,000 in 1985.
- The number of paid, full-time state and local government employees rose from 9,397,000 in 1975 to 10,568,000 in 1985.
- More block grants are being given to state and local governments.

66. Growth of big business (deregulation)

• Deregulation, changes in the interpretation of antitrust laws, economies of scale, and consumer buying patterns all mean that big businesses will continue to get bigger.

67. Growth of multinational corporations

• Firms will increasingly manufacture in one country, assemble in another, and market their product worldwide.

• Multinationals may be affected by the increasing number of AIDS cases in Africa and around the world, since many firms rely on indigenous workers.

68. Growth of futures studies and forecasting

• There will be a growing need to know the consequences of expensive or irreversible acts before the decision is made and a need to anticipate the problems that could develop.

• Future-oriented organizations have moved forward steadily since the 1960s, when they first appeared. The momentum developed in the 1970s can be expected to grow, and such organizations will have increasing influence on decision making in government, business, and education in years ahead.

69. Growing demand for accountability in the expenditure of public resources

• Computers permit large amounts of information to be kept (i.e., audit trails), facilitating accountability.

• Greater emphasis will be placed by the public and the legislatures on the outcomes of programs.

70. Growing demand for social responsibility

• More automobile seat-belt laws will be passed.

• AIDS testing will increase.

• Corporations will test employees for substance abuse and will develop rehabilitation programs that may also include testing for stress levels to determine psychological as well as physical compatibility with a specific job.

• Children's toys will continue to be tested for safety.

• As an aftermath of Union Carbide's Bhopal disaster, there will be stricter laws for potentially hazardous manufacturing and power plants, such as nuclear power plants.

71. A phenomenon of "bimodal" distribution of institutions is emerging as the big get bigger, the small survive, and the middle-sized are squeezed out

• Ten domestic airlines today control 80% of the market, leaving the smaller domestic carriers with only 20%. By 2001, there will be only three major domestic carriers.

• Currently, there are 20 major automakers around the world with market shares ranging from 18.1% (GM) to 1.0% (BMW). By 2001, there will be only five giant automobile firms; production and assembly will be centered in Korea, Italy, and Latin America.

• By the year 2000, there will be three major corporations making up the computer hardware industry: Apple, Digital, and IBM.

• Today, the manufacturer often sells directly to the dealer, skipping the wholesaler or distributor.

• This trend extends to stores (both big chain department stores and discount stores succeeding, while stores in the middle fail); hotels (both large hotel chains and luxury hotels and economy hotels thriving, with those in the middle being squeezed out); restaurants (both elegant restaurants and cheap, fast-food restaurants making it, at the expense of family restaurants in the middle); hospitals (growing hospital corporations and inexpensive, walk-in medical centers); agriculture (farmers making over $500,000 annually flourishing and farmers making under $100,000 surviving, while the middle-income farmers go bankrupt); banks (interstate banks and international banking are growing, and small local banks pushing service are succeeding, while mid-size banks are either bought by larger banks or fail); and financial institutions (large mergers and takeovers continue to take place while the local brokers are also making it).

• This trend leads us to believe that AT&T may be reconsolidated in the mid-1990s.

• What we see across the board with institutions is also happening within organizations, as the traditional pyramid is flattened and middle management is squeezed out.


CETRON


ROCHA


LUCKINS

About the Authors

Marvin J. Cetron is founder and president of Forecasting International, Ltd., 1001 North Highland Street, Arlington, Virginia 22210.

Wanda Rocha is a lecturer and consultant. Her address is 14750 N.W. 77th Court, Suite 225, Miami Lakes, Florida 33016.

Rebecca Luckins is a research associate with Forecasting International.

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Marvin J. Cetron,
Wanda Rocha, and
Rebecca Lucken

THINK BIG OR THINK SMALL

The Future of American Business Firms

Mid-sized operations are vanishing as changing market conditions favor companies that are either very large or very small.

Not so long ago, you could sum up the American business world with a song lyric: The rich get richer and the poor get poorer. Large companies prospered; some grew into giants. Small firms quietly stagnated until they either went under or were bought by a larger competitor.

The country doesn't work that way anymore. It hasn't for nearly ten years. In the new economy, the rich still get richer, but the poor — or at least the small — are surviving quite handily. It's the middle that is rapidly disappearing.

This is one of the most pervasive trends in the American economy today, and it is one of the least noticed. At Forecasting International, we call it the "bimodal distribution" of institutions. In the next dozen years, it will dramatically change the scenery of the business world, not just in the United States, but throughout the industrialized nations.

Good examples of rapidly growing business institutions are easy to find. On Wall Street, Shearson combined first with Lehman Brothers, then acquired E.F. Hutton to become Shearson Lehman Hutton. Coca-Cola accounts for 40% of the soft-drink market, and PepsiCo for another 30%; now 7-Up and Dr Pepper have combined to become the third-largest manufacturer of soft drinks, accounting for 14% of the market. Just two years ago, Humana Hospitals Corporation was acquiring hospitals at a rate of one a day, while Hospital Corporation of America settled for

One Giant Middle Class

Bimodal forces are transforming the U.S. economy, but in society we find exactly the reverse. Contrary to most reports, the United States is not becoming increasingly polarized between rich and poor, and it is not losing the middle class. Instead, the movement is toward one big middle class, with fewer and fewer truly poor or truly wealthy individuals.

Granted, the United States is not Sweden, where the richest tenth of the population earns only two-and-a-half times as much as the poorest tenth. Yet, most Americans fall solidly into the middle class, and the average American's situation in any class has improved markedly since the 1950s.

So why do many Americans believe their standard of living is declining and will fall even further? Could it be that, as one writer said, "Too much ain't enough," or that we are the victims of our own expectations? Young people who have grown up in relative prosperity seem to forget how hard their parents worked to get where they are today.

In a society that expects instant gratification, many people have come to regard vacations in the Bahamas, nifty sports cars, and dining out in fancy restaurants as their due without having to work long and hard to get them. One 32-year-old New Yorker (making $50,000 a year) relates that, "I feel poor. I can't even get married." Marriage, he says, requires "the ability to give kids two ski vacations every winter and two weeks at the Cape every summer."

The truth is that people simply imagine that life used to be easier. It isn't so. The real standard of living is increasing by 20% every 10 years, according to economist Fabian Linden of the Conference Board. People have more economic opportunity and a wider range of choices on how to live today than at any time in the nation's history. Incomes and net wealth are up, the poverty rate is declining, and unemployment is at the lowest level in 15 years. Americans are living longer, earning more, and buying more with the money they make.

- **Income.** The median income for all U.S. families was well within the middle class in 1986, at $29,460. This was a 4.2% increase over 1985 and a 50% increase (after inflation) over 1960.

Changes in family life have also made things easier for most people. The majority of families have two wage earners, so they are less vulnerable to loss of income. People are also marrying later (after they "establish" themselves financially) and are having fewer children. With smaller families — fewer people to share with — any income gained stretches farther.

- **Income distribution.** Money is being distributed more evenly, a trend that should continue for the rest of this century. The new tax laws will close many of the loopholes once enjoyed by the rich. Now the rich will be forking over more of their income for taxes, while the poor and middle class will be squeezed for less.

Shifts in income distribution today tend also to reflect changes in families. For example, many single middle-class men and women are "finding each other." When they marry, they swell the ranks of the rich because two middle-class incomes add up to one upper-income family. The Census Bureau reports that more families departing the middle class are moving up rather than down. Families earning $50,000 or more annually grew from 13% of the population in 1970 to 18.3% in 1985.

- **Purchasing power.** The average American has twice as much buying power today as in 1952. An American worker labored only one-third as long to earn the price of a kitchen range in 1986 as in 1952; a man's suit required 55% less work; a car tune-up, 11% less; a fryer chicken, 64% less. It takes the average family 23 weeks of income to buy a median car today versus 26 weeks in 1960. One thing that is truly harder to buy today is a house, because of large down payments and increased monthly carrying costs.

- **Employment.** At 62%, employment in the United States now stands higher than ever. Many experts expect this number to increase even further, fueled by the export boom and a weaker dollar.

The United States is changing from a manufacturing economy to a service-oriented economy. By the year 2000, 40% of all new jobs created will call for more skilled and educated workers. With little data to support the idea, many experts have claimed that high-paying manufacturing jobs are being replaced with low-paying service jobs and that many in the middle class will slip into poverty as a result. In fact, the shift from factory work to service-industry professions has cost workers very few middle-class jobs. The proportion of high-skilled, high-paid jobs has increased from only 3% of the work force in 1960 to 8% today. On the other end, low-paid, menial jobs have decreased from 21% of the work force in 1963 to 16% today.

The problem lies in matching

displaced workers from the manufacturing industries with new middle-class jobs that require very different skills. This involves relocating and retraining, areas in which government and business must step up their efforts.

• **Education.** The percentage of Americans enrolled in college and technical schools has held constant for the last 35 years. Although the cost of a private-college education has escalated dramatically, public-college bills have declined slightly as a share of income of families with college-age children. This means the burden of paying for higher education for most families has decreased slightly, since public colleges account for the majority (80%) of graduates. Financial aid also allows students who could never hope to go to college the chance. Half of all freshmen today are eligible for loans, grants, or work-study programs; in 1960, only 4% qualified.

• **Blacks.** Blacks have made considerable progress over the years. Today, one-third of all black families are middle class — nearly triple the number in the 1960s. The change is even more dramatic since the 1950s, when one-half of all blacks lived in poverty.

There are rough times ahead, however. Black workers will be hit especially hard by bimodal distribution, because many occupy positions in lower and middle management that are likely to be squeezed out. Also, relatively high-paying entry-level factory jobs, which have helped many blacks rise up from the ranks of the poor, are now declining.

The answer to these problems lies in retraining and education. Workers displaced by restructuring will need to learn new skills for new jobs. Those just entering the labor force will find they cannot live without a college education or some other post-high-school training. Yet, fewer blacks are going to college today than in the 1970s, and the public education that most blacks receive is inadequate in many areas. For the black middle class to remain afloat, these problems will have to be dealt with.

• **The elderly.** The elderly have never been better off. During the 1950s, one-third of them were destitute; today, their median per capita income is greater than that of the average American. They make up but one-sixth of the population, yet hold one-third of all household net worth and 40% of financial assets. Social Security benefits and private pensions add further to their prosperity.

• **The poor.** Unfortunately, there is still poverty in the midst of plenty. Going strictly by the numbers, however, the situation has actually improved over the last 25 years. One in seven Americans is poor today, versus one in five in 1960.

Thus, though the United States still has its problems, the situation has improved for the majority of its citizens. As economist Lawrence Lindsey, assistant professor of economics at Harvard, puts it, "A middle-class person is someone who expects to be self-reliant, unlike the upper class with its unearned wealth or the lower class with its dependency on society. Far from declining, the middle class is bigger than ever, and its ethic is alive and well."

— Marvin J. Cetron, Wanda Rocha, and Rebecca Lucken

five acquisitions per week. And in the auto industry, Chrysler's recent buy-out of Jeep AMC is still another example of the big getting bigger.

So far, none of this should come as any surprise. Larger firms always enjoy the advantage of economies of scale. Today's information technology is giving them one more advantage: Information is power. Those who have information — and use it in a timely fashion — succeed; those who can't find information and use it efficiently soon fail.

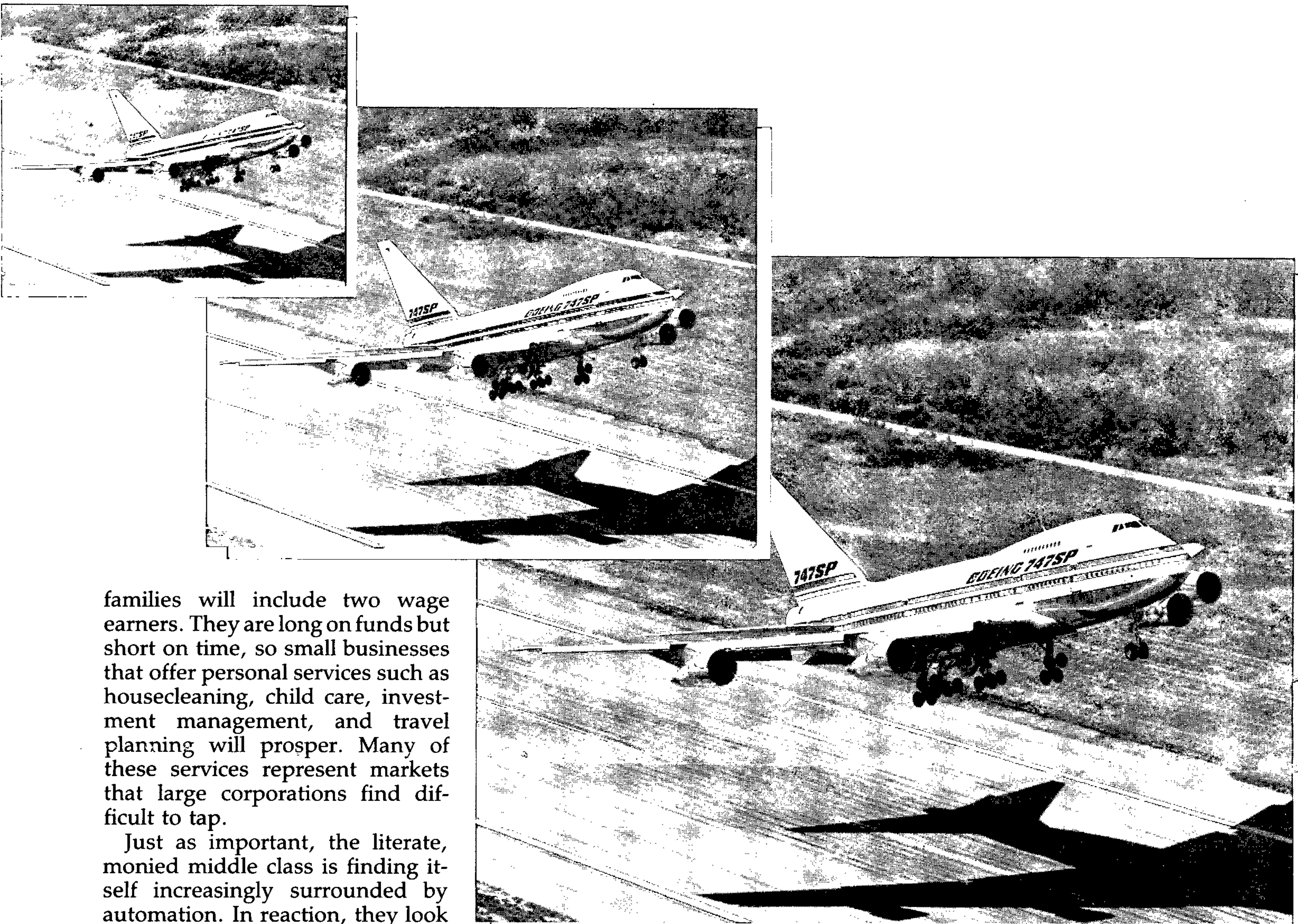
Because of their size, larger firms can afford the latest and most-sophisticated computers and telecommunications equipment. It gives them an edge over their smaller competitors. In addition, larger firms can cut costs when they take over a small company by retaining a single set of well-paid top managers. New information technologies often permit companies to flush out a whole layer of middle management, resulting in further savings.

Deregulation and lenient antitrust policies have helped as well. Deregulation of the airline industry in 1980 removed many of the obstacles that prevented large carriers from absorbing their competition. The Reagan administration has since extended this policy to many more industries, prompting mergers in every field that deregulation has touched. The administration's minimal antitrust efforts quickly eased any fears that mergers would run much risk of triggering government intervention.

Bimodal Distribution and Consumers

All this explains why large companies are buying up their mid-sized competition. But tiny manufacturers and service firms surely can't cut costs the way a corporate giant can; how is it that they, too, are flourishing?

The answer is that one segment of American business has escaped bimodal distribution: the consumer. Look at individual human beings instead of companies and you'll find a prosperous and fast-growing middle class. By the year 2000, three-fourths of American



BOEING CORP.

Large airlines will increasingly merge and dominate the U.S. domestic market. By 2001, there may be only three major U.S. airlines in existence, while small feeder airlines will handle local traffic.

families will include two wage earners. They are long on funds but short on time, so small businesses that offer personal services such as housecleaning, child care, investment management, and travel planning will prosper. Many of these services represent markets that large corporations find difficult to tap.

Just as important, the literate, monied middle class is finding itself increasingly surrounded by automation. In reaction, they look for a "high-tech/high-touch" approach from the companies they deal with. The more they rub up against sterile, hard-edged technologies, the more they seek to add a human element to their lives. As computers further dominate their working lives, people will become more interested in paintings, handmade furniture, tailored clothes, tailored services, and tailored advice that sets them apart from technology and reasserts their identity as human beings.

The demand for these new products and services is being met by people who work for themselves or for small, highly responsive companies. They provide services that, for the most part, few people thought much about even a decade ago. This trend is sure to grow throughout the 1990s.

Consumers are fueling the spread of bimodal distribution in yet another way by buying from both ends of the spectrum. They go to luxury resorts for fantasy vacations or to elegant Victorian bed-and-breakfasts for a return to genteel living, but on the way there they stop over to sleep at economy motels. They have dinner at elegant restaurants — after all, what good is having two incomes if one of you has to cook dinner every night after you've both had a hard day at the office? — but they have lunch at fast-food stands. Or they drive Mercedes or BMWs but fill their own gas tanks and wipe their own windshields. Large companies with inexpensive products and services get some of their money, and small firms with high price tags — but quality to match — also receive their share. It's the mid-sized companies with mid-priced products that get left out.

Industries Affected

The mergers that have driven bimodal distribution are concentrated in industries where government regulations either have been relaxed or were not a significant obstacle to begin with. Examples include:

- **Airlines.** Merger activity has been heavy for the airline industry. Today, 10 domestic carriers control 80% of the market. Of these airlines, only the largest and most efficient will survive. By 2001, we expect only three major domestic carriers to be in existence.

At the lower end of the totem

"As we progress to the third millennium, we expect a consolidation of [the health care] industry into large multihospital systems."

pole, the small feeder airlines will continue servicing local travelers.

• **Department stores.** Department stores offer another classic example of the trend to bimodal distribution. The recent takeover of Federated Department Stores by Campeau Corporation was the biggest merger in retailing history, resulting in the largest department store chain in the United States.

At the other end of the scale, discount and convenience stores offer savings in either money or time. Specialty boutiques that offer unique, unusual, and original products will also succeed.

One is, however, hard pressed to find mid-scale stores that are raking in profits. Woolworth's and Montgomery Ward have both tried to make it as mid-scale stores and have admitted defeat. Both are in the process of scaling down their operations to the discount/savings bracket.

• **Restaurants.** Bimodal distribution is also found in the restaurant business. Major companies are finding that it simply does not pay to operate a mid-size, "meat and potatoes" family restaurant anymore. Some mid-size specialty restaurants exist, offering, for example, Cajun-style or ethnic cooking, but generally mid-size restaurants will drift to the upper or lower end of the scale.

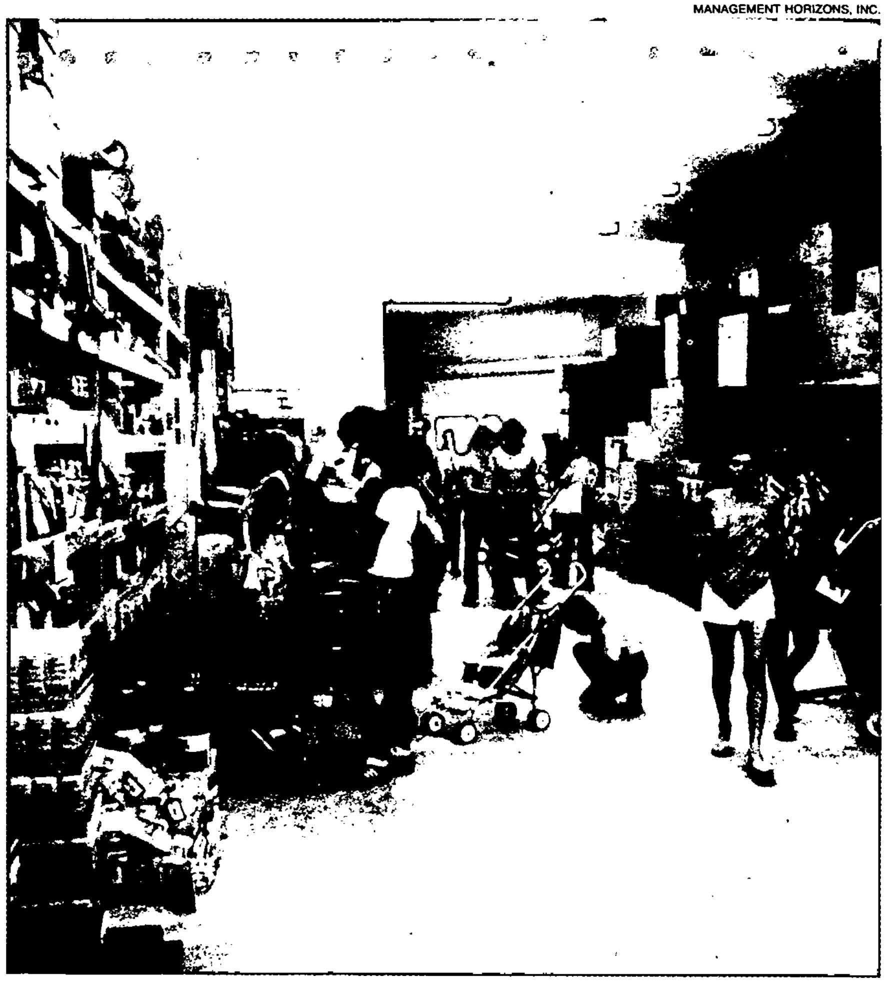
The very big and fancy restaurants, where people go for special occasions, will have to turn away customers. With more women working and both spouses often working overtime, when husband and wife or husband, wife, and children have time to go out together, they go out top dollar. Why not? With two incomes, they are earning more, and since the rest of the time they are either skipping lunch or grabbing a fast-food lunch, they feel no qualms about indulging themselves.

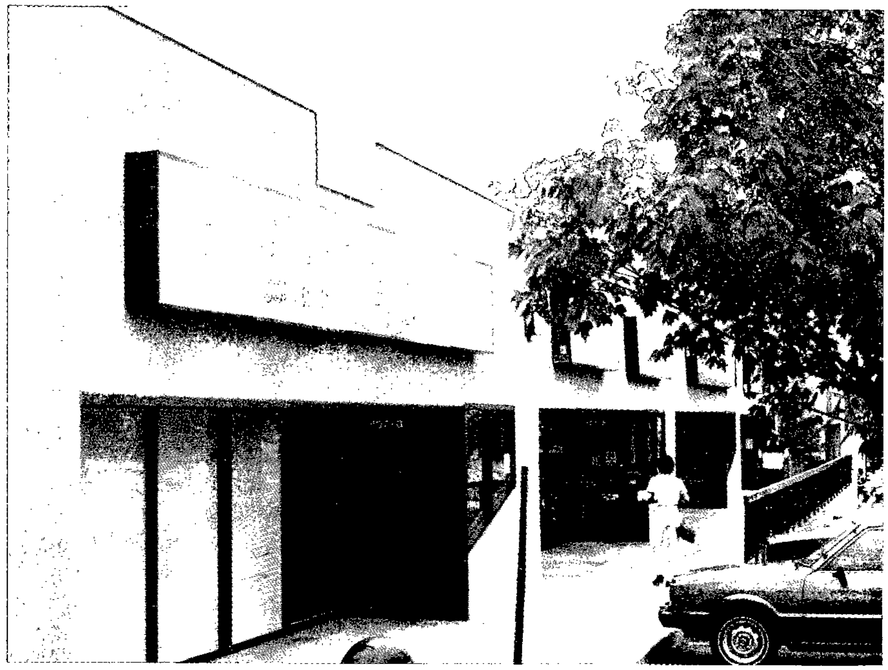
• **Health care.** The health-care industry is second only to defense in the U.S. economy. As we progress to the third millennium, we expect a consolidation of this industry into large multihospital systems. Within these systems, more technologically intensive and specialized hospitals will perform complicated major surgery and provide lengthy treatment for serious illnesses. Ambulatory care centers (surgicenters or Doc-in-the-Boxes) will provide services at the other end.

This trend toward consolidation is accelerated by the fact that, in the early 1980s, government and business stepped up efforts to control escalating health-care spending. As a result of this emphasis on cost containment, the number of hospital admissions and lengths of stay dropped significantly. Hospitals faced monetary problems as fewer patients helped support institutions that must be equipped and staffed to run at full capacity. In addition, hospitals were losing bread-and-butter cases (frequently performed, low-cost procedures) to emergicenters and surgicenters.

Shoppers examine garden supplies in a store devoted to home-related products.

MANAGEMENT HORIZONS, INC.





C.G. WAGNER

Small ambulatory care and emergency centers will grow rapidly in numbers at the same time hospitals will merge and consolidate into large multihospital systems.

The only answer was for hospitals to specialize, expand their services, and become profit-centered. In 1984, more than 1,200 hospitals were owned or operated by for-profit hospital-management corporations, more than twice as many as in 1976. Over 700 hospitals — 10% of all the hospitals in the United States — are expected to close by 1995; many of the rest will merge. By the year 2000, we expect 20 health-care systems to provide medical and hospital care and health insurance to over half of all Americans. Sixteen of them will be for-profit multisystem conglomerates, with the four remaining operating on a nonprofit basis.

At the other end, the ambulatory care centers, or emergicenters, surgicenters, and walk-in clinics, are experiencing monumental growth. This is understandable, since by demanding payment in full at the time services are rendered and by forgoing expensive, specialized equipment, overhead is reduced, allowing these centers to charge as much as 80% less than hospitals.

The first ambulatory care center in the United States appeared in 1973. By 1985, there were 3,000 such centers charging 45 million Americans almost $2 billion a year for their services. Today they are opening at the rate of a clinic a day, a rate that should continue until 1995. By 1990, we expect the number of ambulatory care clinics to be 5,500, reaching 10,000 by the year 2000 and cornering a quarter of the national market for primary health care.

Thus, Americans will increasingly utilize both sectors of the health-care industry, frequenting the smaller centers for less-serious afflictions and returning to the hospital for their more-serious complaints.

• **Hospitality.** The hospitality industry is also subject to the bimodal distribution of institutions. In the future, the big hotel chains and the small, family-run operations will succeed, while mid-sized hotels will go out of business.

Big hotel chains can afford the extra amenities, training programs, and efficient computer systems that give them the edge over their mid-sized competitors. The top 25 chains now control about 50% of U.S. hotel rooms and experienced a 149% growth rate between 1970 and 1985. Today, these chains are gobbling up properties on a case-by-case basis or are buying up subsidiary lines as they consolidate. In the not-too-distant future, three or four chains (Marriott, Hyatt, Sheraton) will dominate the industry.

Interestingly, what appears to be a bimodal distribution within a bimodal distribution is taking place among the larger chains. Large corporations within the hospitality industry are finding it difficult to keep their mid-level, family-style hotels afloat. Customers prefer to vacation at the luxury resorts or the all-suite hotels, but when traveling to those destinations they stay at economy-priced motels. Many of the larger chains are now operating both luxury hotel and economy motel lines that meet these demands.

This does not mean that consumers' choices will be limited to the larger chains. There will still be room for independents strong on personality and personal service. For example, bed-and-breakfasts, often family-run, are popping up as never before. They offer quaint settings, antique furnishings, and homemade, family-style meals unavailable at the luxury resorts or economy motels of their giant counterparts. Other hotels fill a market niche by offering adventure, such as Wild West reenactments or intrigue in the form of mystery weekends.

• **Agriculture.** In agriculture, we see the development of a bimodal distribution of farm sizes. The huge commercial farms are prospering. Most of the small, part-time farms are surviving. But the mid-sized farms show up on the nightly news stories about farmers forced to sell their ancestral homes.

The small, part-time farms with less than $100,000 in gross farm sales (usually earning $20,000 or less) survive because their owners usually earn more net income off the farm than on. Most small farms (93%) have one person working off the farm, and a startling 53% have two people working off the farm. In 1986, small farms accounted for 2 million farms, 35% of production, and 15% of profit. We expect this number to decrease to 1.5 million

"By the year 2000, the number [of large commercial farms] will have grown to 50,000, . . . responsible for two-thirds of [agricultural] production and three-fourths of profit."

small farms (still a significant number) by the year 2000, accounting for 15% of production and 5% of profit. In the meantime, off-farm income will increase as on-farm income decreases, thus assuring the survival of this group.

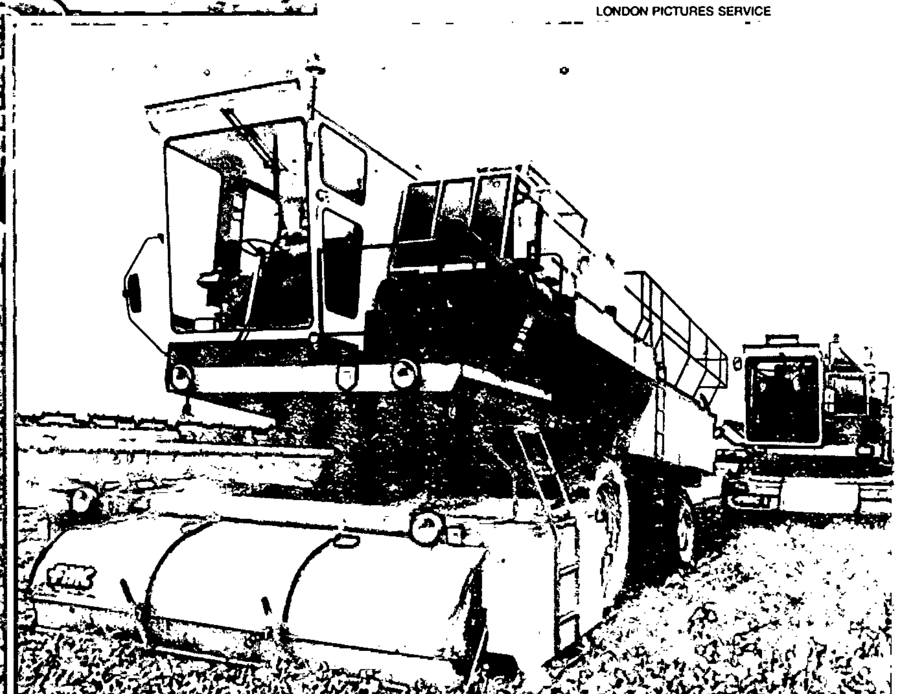
The large commercial farms with over $500,000 in gross farm sales and substantial investments in agribusiness are flourishing. In 1986, there were 23,000 farms of this size, accounting for 25% of production and 50% of profit. By the year 2000, this number will have grown to 50,000 large commercial farms, responsible for two-thirds of production and three-fourths of profit. Like any other huge business, giant farms have advantages over their smaller competitors. They can buy their raw materials at prices 10% lower than smaller farms must pay and sell the produce at prices 5% higher. And, because they have profits to spend, they can afford to adopt computers, biotechnology, and similar innovations as soon as they become available.

Moderate-size farms have none of these advantages. There were 250,000 farms with sales between $100,000 and $250,000 per year in 1986; they grew 40% of U.S. farm products and raked in one-third of the profit. A few of these farms — the best managed — are gradually moving up into the $500,000 category. Yet, by the year 2000, there will be only 100,000 farms left in this size range, accounting for 20% of the nation's farm products and profits. With too much work to permit outside jobs and too little "pull" to win favorable prices from suppliers and buyers, they simply

Small, often part-time farms continue to survive, in many cases with their owners earning more income off the farm than on. At the same time, commercial farms — able to buy more sophisticated equipment — will account for an increasing percentage of agricultural production and profits.

USDA

LONDON PICTURES SERVICE



"American consumers will continue to buy from both ends of the market, fueling bimodal distribution."

cannot compete in the modern farm economy. Most of these farms will eventually be absorbed by large commercial operations.

Goodbye to Middle Managers

It is not just mid-size companies that are disappearing from American business. Being caught in the middle is just as hard on executives. According to management expert Peter Drucker, the typical large business in 2010 will have less than half the levels of management as do similar firms today and about one-third the number of managers. This flattening of the corporate pyramid will leave many middle managers looking for jobs or going back to school to learn marketable skills.

Why is it that middle managers are being displaced? One reason is that traditional management structures are being replaced by information flow; middle management's job has been taken over by the desktop computer. As firms become information-based, they hire more specialists to work in task-focused teams. Information flows freely between specialists at the bottom and upper management, without the go-between of middle management. This is virtually a necessity, since, in the competitive global economy, divisions and departments that have to wait for information to percolate up through corporate layers or for strategic decisions to filter down from an oligarchy of top management will be left in the dust.

Another reason that middle managers are being displaced is that, when companies combine, the big losers are the acquired company's managers. Mergers are very cost-effective, since the high-salaried workers (upper and middle management) of the acquired company are usually replaced with the top management of the acquiring company. The lower-end workers of the acquired company — the ones doing the actual work — are usually kept.

One unfortunate side effect goes along with all this downsizing, restructuring, and merging. The companies may be better off, but the workers and managers go through a wringer. Companies that are downsizing or restructuring report increasing numbers of stressed-out workers who fear for their jobs. Companies that are merging or being acquired even have a name for the condition: "merger trauma."

Many times after a merger, both sets of managers and workers must reapply for jobs in the new organization, with eventual layoffs always a possibility. Even those workers who keep their jobs suffer from what Richard J. Ritchie, manager in corporate psychological research at AT&T, calls a "flashback" phenomenon: They react as if their own jobs are also on the line. Mergers create another kind of madness because workloads often become heavier, deadlines shorter, and managers feel less in control.

Since "merger mania" shows no signs of letting up, merging companies would do well to develop programs to teach employees how to handle stress. Research has found that 80%–90% of all diseases are to some extent stress-related. Companies end up paying the price in employee absenteeism and escalating medical costs (many large corporations spend more than $200 million a year on medical benefits for their employees). Thus, it certainly makes economic sense to spend money on preventive measures before stress-related problems take their toll on the bottom line.

Continued Bimodal Distribution

In conclusion, we see bimodal distribution remaining at least until the latter half of the 1990s, particularly if Republicans continue to occupy the White House through 1996. In that case, companies bent on acquisitions need not fear tighter antitrust enforcement.

Large corporations will continue their merger activity, spurred by affordable interest rates, a weaker dollar, and economic fundamentals. Mergers and acquisitions involving a common product or service — the so-called "synergistic" deals — show no signs of declining. As William Loomis, general partner at Wall Street investment firm Lazard Freres & Co., puts it, "Now in takeovers you will see not only capital but industrial expertise involved — logic is prevailing instead of simply an excess of capital looking for a home."

American consumers will continue to buy from both ends of the market, fueling bimodal distribution. We will see growth in both discount stores and upscale "boutique" firms. People with middle-class incomes simply prefer to save money in some areas so they can splurge in others. And, barring changes in the tax code, the United States' citizenry will continue to evolve into one large middle class — still with problems that remain to be addressed but, by and large, better off than ever.


CETRON


ROCHA


LUCKEN

About the Authors

Marvin J. Cetron is founder and president of Forecasting International, Ltd., 1001 North Highland Street, Arlington, Virginia 22210.

Wanda Rocha is a lecturer and consultant. Her address is 14750 N.W. 77th Court, Suite 225, Miami Lakes, Florida 33016.

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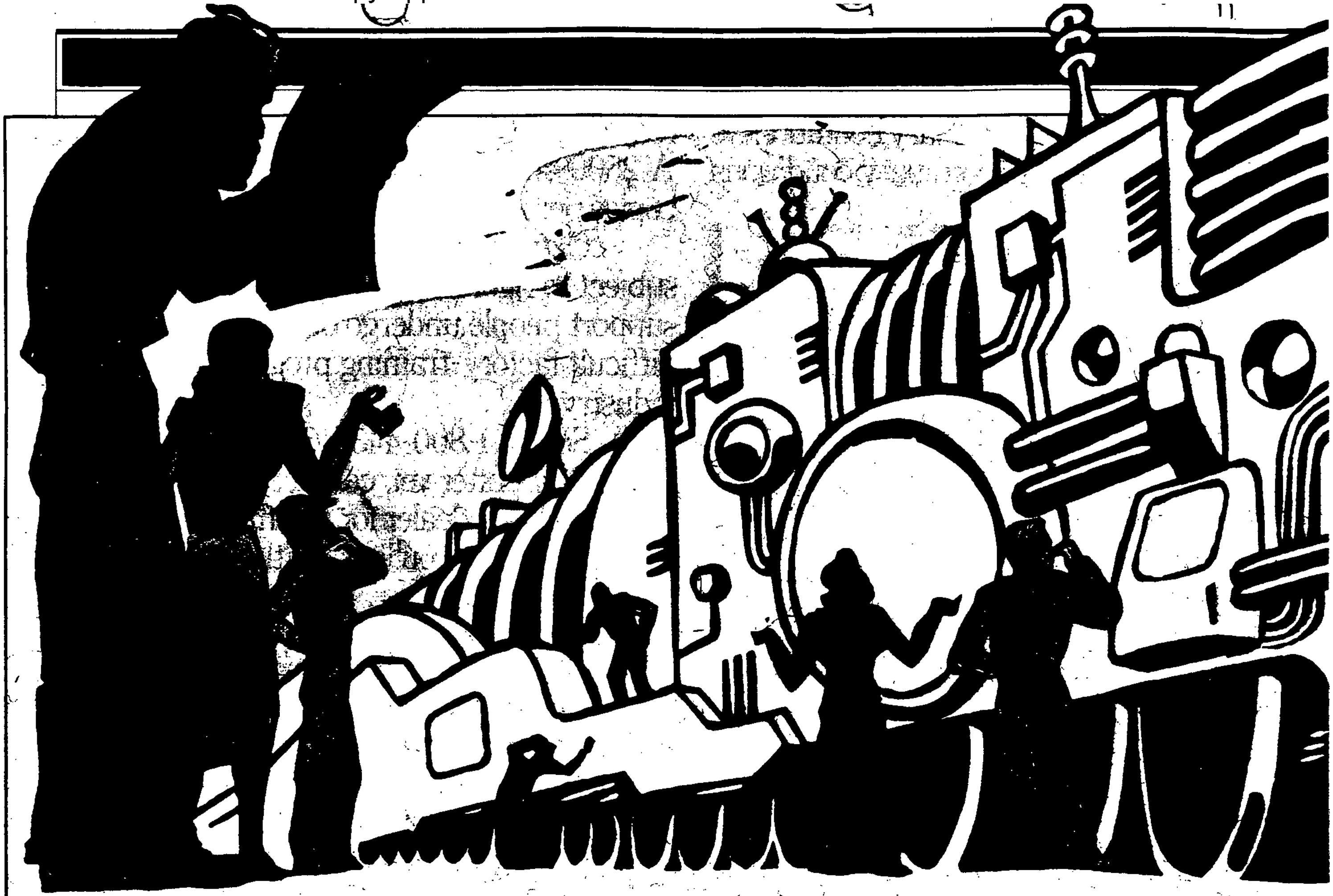


NEEDED: HUMAN

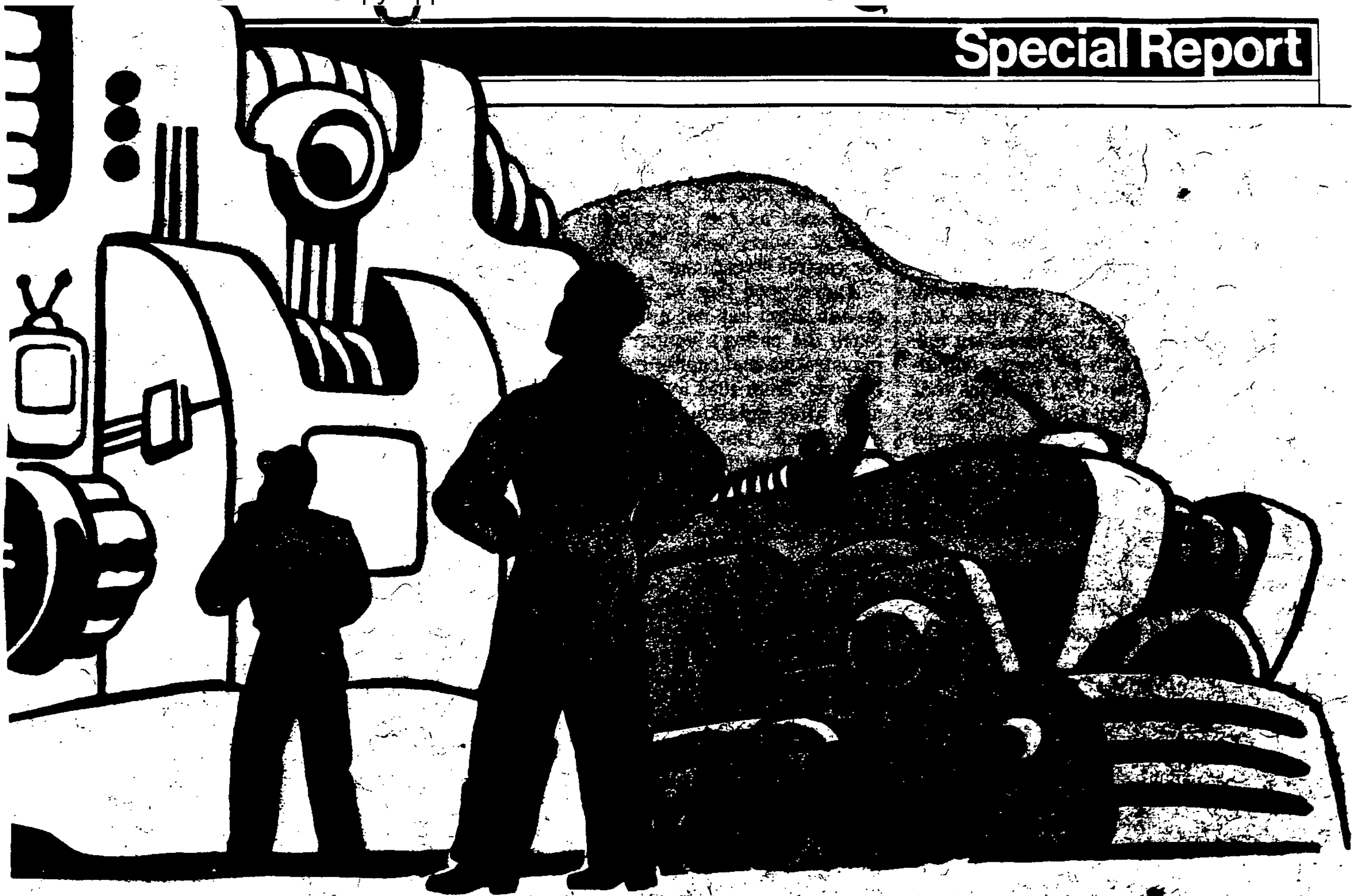
Who will do America's work as the demand for skilled labor outstrips a dwindling supply? The U.S. has lost much ground to competitors, and investing in people looks like the way to retake it. After years of neglect, the problem of human capital has become a crisis

Take a trip back to what may be our future. It is the 1851 industrial exhibition at the Crystal Palace in London. Britain is the dominant world power. The U.S. is No. 2 in industry and catching up fast.

Made-in-America reapers, muskets, and tools are the marvels of the show. British businessmen are amazed at what they see. Products are assembled from completely interchangeable parts. Here is true mass production for the first time. So impressed are they that they name it "the American system of manufacture."

Worried delegations of British industrialists set sail to investigate. Their findings? American manu-

Declassified in Part - Sanitized Copy Approved for Release 2012/10/10 : CIA-RDP90-00530R000300600001-7



CAPITAL

facturing prowess is in large part due to a highly educated work force. The Yankees have an astonishingly high literacy rate of 90% among the free population. In the industrial heartland of New England, 95% of adults read and write. In contrast, just two-thirds of the people in Britain are literate.

BLINDSIDED. Now zip ahead a century or so to the 1980s. The U. S. is the dominant world power, and it is Japan that is No. 2 and closing fast. American CEOs marvel at the quality of Japanese products flooding their markets. They make pilgrimages to Tokyo. Their findings? Manufacturing superiority is being forfeited to the Japanese. And yes, once again, behind the success in manufacturing prowess lies a better-educated work force. In 1988, Japan's functional literacy rate is better than 95%. In America it's down to about 80%.

Illiteracy is but a symptom of the larger problem afflicting the U. S. economy. The $150 billion yearly trade deficit and a foreign debt of half a trillion dollars reflect the inability of a large percentage of the American work force to compete effectively in an integrated world economy. "Much of the success of Japan stems from the fact that its blue-collar workers can interpret advanced mathematics, read complex engineering blueprints, and perform sophisticated tasks on the factory floor far better than blue collars in the U. S.," says Merry I. White, professor of comparative sociology at Boston University and author of *The Japanese Educational Challenge.*

America, in short, has been scrimping on human capital. After trying to solve its serious competitiveness problems by pouring hundreds of billions of dollars into capital equipment, the country is discovering that it has been blindsided when it comes to workers. Corporate restructuring and a sharply cheapened dollar may have arrested the economic decline, but investing in people is turning out to be the only way to reverse it.

Society's failure to invest is already haunting the business community. Chemical Bank in New York must interview 40 applicants to find one who can be successfully trained as a teller. And IBM Corp. discovered after installing millions of dollars worth of fancy computers in its Burlington (Vt.) factories that it had to teach high-school algebra to thousands of workers before they could run them.

Building up human capital is becoming a national priority. After years of neglect, it has finally entered the political arena, at least on the rhetorical level. Just listen to the messages being broadcast by both Presidential candidates. Who will be the "Education President?" Who will do the most to train workers or provide child care to working mothers?

Those messages are long overdue. More than two centuries ago, Adam Smith pointed to the improvement in the skills of workers as a critical source of economic progress and a means of raising living standards. Wrote Smith in *The Wealth of Nations:* "A man educated at the expense of much labor and time to any one of those employments which require extraordinary dexterity and skill may be compared to one of those expensive machines."

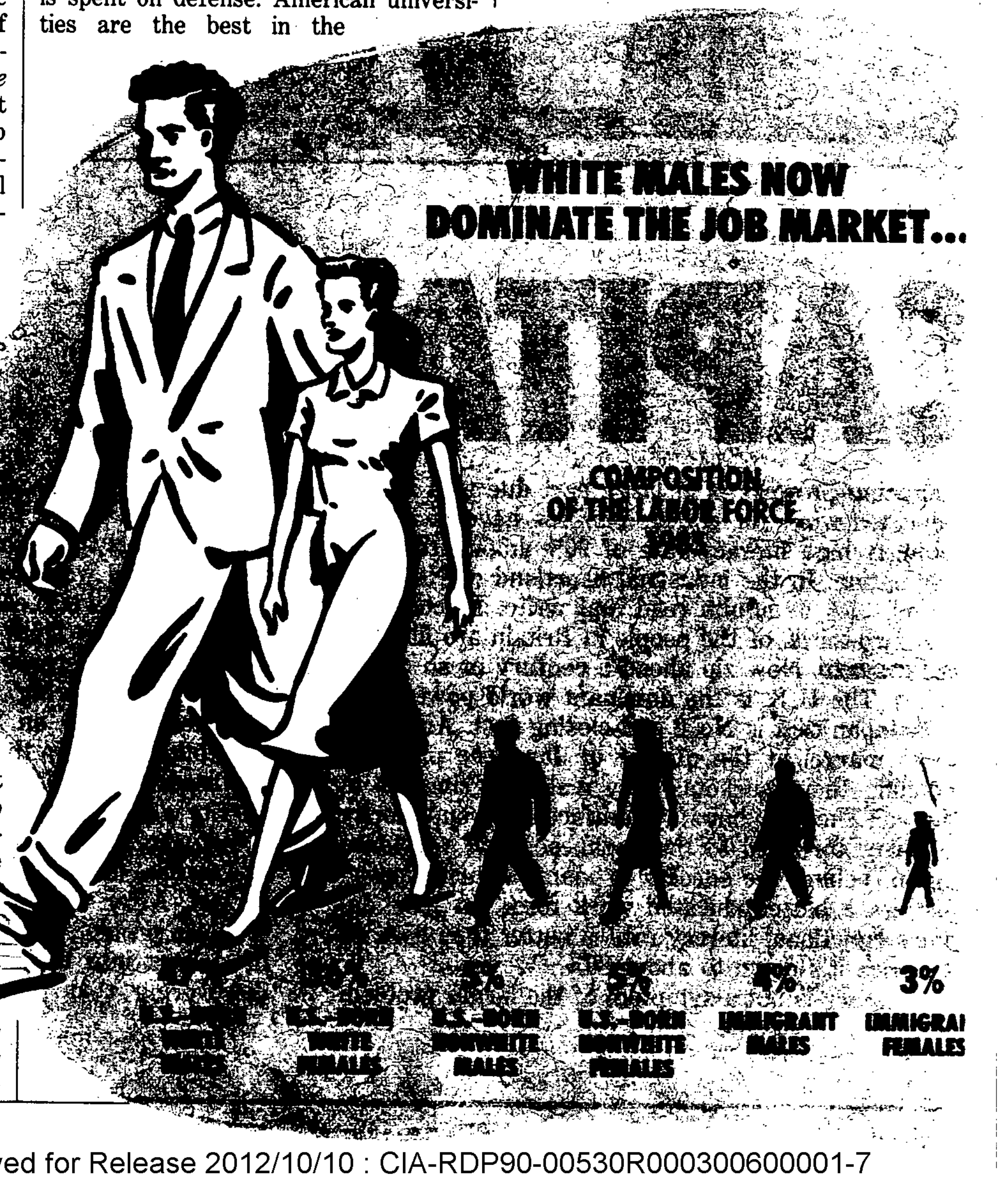
'ABSOLUTELY CRUCIAL.' The evidence is overwhelming that people, not machines, are the driving force behind economic growth. In the period from 1948 to 1982, the nation's gross national product increased at an annual rate of 3.2%. Edward Dennison, an expert in growth economics, finds that one-third of that gain was caused by the increase in the education level of the U.S. work force and about half the growth was the result of technological innovation and increased know-how, which also depend on education. But just 15% of the total increase was the result of more capital equipment.

While Washington has been hell-bent on throwing incentives at business to increase spending on plant and equipment, outlays for human capital in the past 15 years have lagged behind. In the period from 1959 to 1971, total spending per student in public and private elementary and high schools grew at a brisk 4.7% a year, after adjusting for inflation. That was more than a full percentage point above the robust 3.6% rate of increase in the GNP and even a smidgen higher than what business spent on plant and equipment. But from 1971 to 1985 things changed drastically. Dollars for education increased at a rate of just 2.7% in real terms, the same rate as GNP growth but 1.5 percentage points below the spending rate for capital investment.

And a good part of the money spent on education has not gone to those who teach the nation's young. Excluding administrative and capital cost from school budgets, from 1959 to 1971 teachers' salaries after inflation increased at a 2.8% annual rate. But then, even as international competition started to heat up, teachers' salaries nose-dived, falling by 1.25% a year until 1985. They've bounced back a bit since, but in real terms, salaries are barely above their 1971 level. Small wonder that top-notch college graduates are not attracted to teaching.

True, the U.S. spends plenty on education: $185 billion a year on primary and secondary schools alone. When colleges and universities are added in, the figure soars to $310 billion—more than is spent on defense. American universities are the best in the world, but elementary and high schools are another story. The U.S. gets a lot less for its education buck than do Japan and Europe. U.S. students attend class 180 days a year. French and German kids go 220 days, and Japanese children spend 240 days in school a year. American high school students score below both their foreign counterparts in international math and science tests. They test two to three years behind the Japanese, neatly matching the difference in time spent in school from kindergarten through high school. Worse, half of the kids in inner-city public high schools drop out. "The issue is not money, it's competent use of money," says Pat Choate, director of TRW Inc.'s Office of Policy Analysis. "Janitors in New York City schools make more than teachers. Education systems are patronage systems: Community boards give out jobs."

SECOND FIDDLE. Educating America's future work force reaches beyond the classroom. A fourth of all children born in the U.S. will be on welfare sometime in their lives. A quarter of all American



children are born out of wedlock, and 42% of them will live in a single-parent family before they reach their eighteenth birthdays. As a result, education often plays second fiddle to the more pressing needs of survival.

The once-pervasive family role in education appears to be seriously eroding. With both parents in most families now working, the question of who's reading to the three-year-old and checking up on Junior's geometry homework is becoming a national concern. In Japan the mother plays such a strong role in teaching her children that she is known as "education mama." Here, the "education mama" is vanishing—and "education papas" aren't taking up the slack.

One big exception is in the Asian-American community. "This year, 22% of MIT's freshman class is Asian-American," says Lester C. Thurow, dean of the Sloan School of Management at Massachusetts Institute of Technology. "The big reason for Asian-American success in public schools is family; family means some parent telling you that education is important."

At a time when jobs require higher levels of math, science, and literacy than ever before, the economy is becoming increasingly dependent on the groups that often receive the poorest education. Between now and the year 2000, more than half of all new workers hired will be minorities, nearly three times the current figure. Blacks and Hispanics have the highest school dropout rates in the country and lag significantly behind the national average on test scores.

But there is hope. The needs of the American workplace and the needs of the disadvantaged may be merging for the first time in recent history. The drive to raise productivity and increase international competitiveness is transforming the debate over social equity into a discussion about economic growth.

BENIGN NEGLECT. The Reagan years were an understandable reaction to the free-flowing social spending that earmarked the 1960s and 1970s. The national focus shifted to restructuring industry, deregulating the economy, and personal advancement. In the 1980s, programs for the bottom half of society got the deepest cuts. It wasn't all "welfare," either. The Labor Dept.'s manpower training programs were hit hard as well.

Those cuts in training could not have been timed worse. "The split between the top half and bottom half in society has been widening for the past decade, no matter how you cut the data," says Harvard University's Richard B. Freeman. "The educated, the skilled, and people in certain industries and jobs have done well. The rest have not." This inequality can only worsen if the human-capital deficit is not solved. The internationalization of the economy in the 1980s pitted the U.S. labor force against workers around the world. The results? "Trade has killed the earnings prospects for less educated people," says Freeman. "They must compete with lower-wage people overseas. As long as we trade with Korea, the less educated will have a problem."

That competition has proved devastating. From 1959 to 1986, earnings for young men who quit high school fell by 26%, adjusted for inflation. Even high-school grads saw their earnings drop by 9%, while those of college graduates rose by 6%.

In the final analysis, wage gains and losses mirror what is happening to worker productivity. The huge decline in the wages of America's unskilled labor force shows that it is no longer competitive in the international economy. The productivity of the unskilled is plummeting, while worker productivity abroad is soaring. This could signal major losses in the battle for world markets. The U.S. may now be entering an era when neglect of the bottom half of society begins to threaten the welfare of the entire nation.

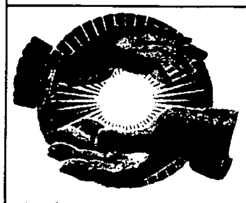
In the following articles the editors of BUSINESS WEEK lay out the dimensions of the human-capital crisis—and what the country must do about it.

By Bruce Nussbaum in New York

Entrants to labor force 1985-2000

WHERE THE JOBS ARE IS WHERE THE SKILLS AREN'T

As work becomes more knowledge-intensive, employers are fishing in a shrinking labor pool



In a dynamic economy there is always a gap between job demands and worker skills. Through most of its history, the U.S. has managed to keep that gap small. But not anymore. The nation is facing a monumental mismatch between jobs and the ability of Americans to do them.

Unless the U.S. invests more to close this human capital deficit, the economy will be shunted onto a lower growth track. The drive to improve technology and productivity could founder on a shortage of competent workers. There will be a social price, too: Lower-skilled minorities will find it harder than ever to land good jobs. The earnings differential that already is growing between the top and bottom halves of the work force could get even larger. The nation could become further polarized between skilled and unskilled workers.

NEW YARDSTICK. Three forces are combining to produce the leap in the skills the economy will require. First, technology is upgrading the work required in most jobs. The modern workplace needs people with high reading and math capabilities, so millions of jobs go unfilled while the army of the unskilled remains unemployed.

Second, job growth will be fast mainly in high-skill occupations. Most of these jobs will be in the service sector. This kind of work now requires knowledge that wasn't necessary 20 years ago.

Finally, the way in which work now is being organized requires a completely new set of skills. As companies shift from the old models of assembly-line production to Japanese-style work teams, employees will have to sharpen their abilities to communicate.

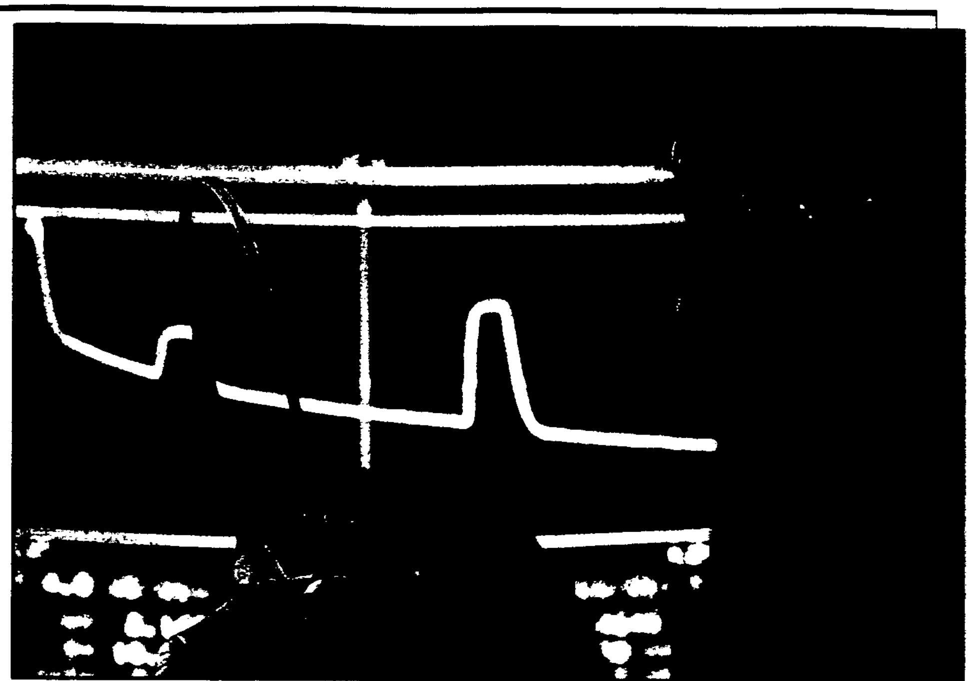
A detailed look at how new workers will match up against new jobs between now and the year 2000 tells the story (chart). The Labor Dept. has devised a method for measuring, on a scale of one to six, the levels of reading, writing, and vocabulary needed to perform a wide range of jobs. The Hudson Institute, an economic think tank, has matched the new jobs that the economy will create against these scales. Here is what they found:

More than three-quarters of the nation's new workers will have limited verbal and writing skills (Levels 1 and 2). But they will be competing for only 40% of the new jobs. Most new jobs will require workers who have solid reading and writing skills, but fewer than one in four new employees will be able to function at the needed levels. Retail sales, for example, will be among the occupations providing the most new jobs. To fill those jobs, most retail employees will have to function at Level Three. They will have to write up orders, compute price lists, and read merchandise catalogs. Sound simple? Nevertheless, Hudson estimates that just 22% of the new employees will be able to function at Level Three or better.

For jobs in nursing or management, the educational ante is higher. Most of these jobs, which often require more than a high-school education, need skills at Level Four or above: an ability to read journals and manuals, write reports, and understand complex terminology. Just 5% of the new employees will be able to do that.

DAUNTING TASK. As many as 50 million workers may have to be trained or retrained in the next 12 years—21 million new entrants and 30 million current workers. The most daunting task ahead is to educate and train the young work force entrants. The decline in the number of 21- to 25-year-olds means that employers now must dig deeper into the barrel of the poorly educated. And a larger proportion of new workers will be

CHARTS BY RAY VELLA/BW



TIME TO REWIRE

As New York Telephone switches to fiber optics, it's rushing to retrain workers—proof that the skills gap affects longtime employees as well as recruits

minorities and immigrants, who tend to have less education and fewer skills than other employees.

Minorities are the neediest of these new workers. But as employers become increasingly dependent on them, minorities are lagging behind in reading and writing skills. And those already working tend to be stuck in occupations that are disappearing, while few have jobs in growing industries (table, page 108).

As the economy continues to expand, big companies are looking harder for new workers. But many minorities with low skills still aren't being hired. Last year, Nynex Corp.'s New York Telephone Co. had to test some 60,000 applicants—many of whom were minorities—to hire 3,000 people. "There are lots of people who still want jobs, but they're dropouts who aren't qualified," says Howard Harman, New York Telephone's director of employment.

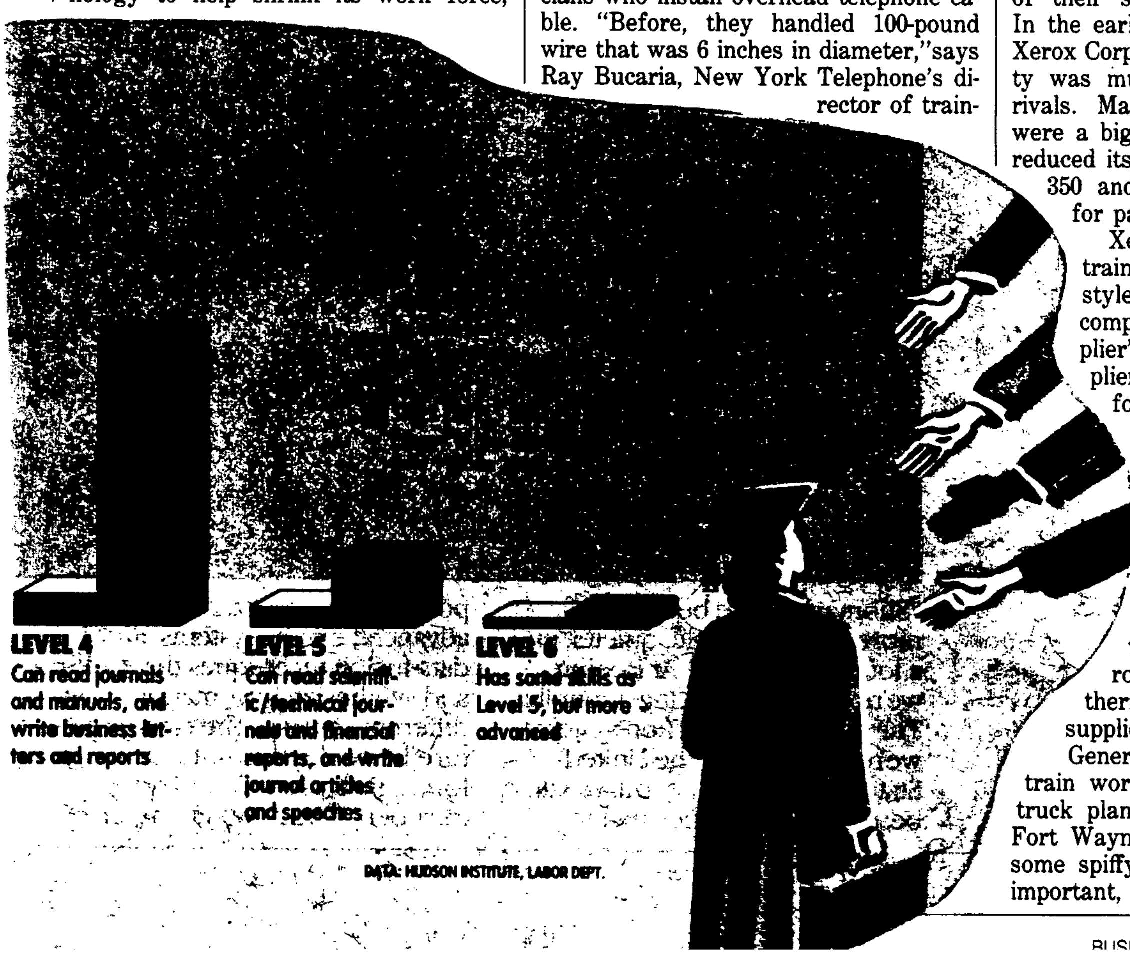
People who already are working will need massive retraining to keep pace with changing job requirements. They are the 30 million who will need more math and science to operate computers and robots on the assembly lines or better reading and writing skills to keep up in the office.

True, many companies are using technology to replace workers—but those employees who stay on the job generally must improve their skills. For instance, New York Telephone has used new technology to help shrink its work force, which now numbers about 50,000, compared with 106,000 in the early 1970s. Nonetheless, the company has been forced to increase its in-house training rapidly to upgrade the skills of its remaining workers. NYT has four technology-learning centers where employees are taught to operate the handheld computers that telephone repairers use to keep track of orders. One five-day course retrains skilled splicing technicians who install overhead telephone cable. "Before, they handled 100-pound wire that was 6 inches in diameter,"says Ray Bucaria, New York Telephone's director of training. "Now they must learn to use fiber optics, which means splicing very delicate fibers—like a brain surgeon, almost."

A growing number of companies go so far as to train the employees of their suppliers. In the early 1980s, Xerox Corp. found that its product quality was much poorer than that of its rivals. Management decided suppliers were a big part of the problem. Xerox reduced its 3,000-odd suppliers to about 350 and raised tolerance standards for parts it buys from them.

Xerox then began a program to train its suppliers in Japanese-style quality control. Typically, a company employee trains the supplier's management, and the supplier then trains its own work force in the new methods. Xerox initially will train about 100 of its 350 suppliers, at an estimated cost of $1.5 million. "Training suppliers has become a permanent part of the way we do business," declares Robert Fletcher, who manages material quality assurance at Xerox. Motorola Inc. goes further: It even trains its suppliers' suppliers' work forces.

General Motors Corp. had to retrain workers when it opened a new truck plant a year and a half ago in Fort Wayne, Ind. The plant does have some spiffy new technology. But more important, it has a new team-production



KEN KERBS

system. Both workers and management had to go through intensive training in group dynamics and problem-solving to increase manufacturing productivity.

"Our people never heard of this until a few years ago," says Don Davis, the union head of a GM/UAW joint training program in Detroit. In all, Fort Wayne's 3,000 employees took 1.9 million hours of training, including time to learn the new technology. That's more than 633 hours per worker.

Companies are now spending some $30 billion a year on worker training. A lot of that money is going to upgrade the skills of office workers. Take Mary Ann Moscillo. After her father died, she dropped out of school at 16 to work as a clerk in the mail room at Blue Cross/Blue Shield of Massachusetts. She wasn't able to advance on the job for almost a decade. Then she enrolled in a remedial education program run and paid for by Blue Cross, and she learned reading, math, and history. Armed with a new high school diploma, Moscillo has had three promotions. Now, she compares claims made by hospitals with payments Blue Cross makes to them, finding and explaining variances between the two.

BABY BUST. The churning economy is generating millions of displaced workers. They account for more than one-half of the people already at work who will need retraining by 2000. Throughout the 1980s, some 2.3 million workers have been displaced each year, according to the Bureau of Labor Statistics. Roughly 1 million long-term workers—those on the job three years or more—have been displaced annually. Approximately 30% of these lack basic skills—reading, writing, and arithmetic. Consequently, a third never found new jobs at all. Others found work but at substantially lower pay.

Elite workers, as well, could be in short supply. Because of demographic trends, the U.S. is facing a long-term shortage of scientists and engineers. The number of both has climbed steadily in the past two decades, but only because the baby boom brought many young people into the labor force. The percentage of students who choose these fields has actually remained constant. In the past 30 years, the proportion of 22-year-olds acquiring bachelors' degrees in science and engineering has remained within a narrow band of 3.7% to 4.3%, according to the National Science Foundation (NSF).

If this trend continues, the baby bust could cause growing shortages. If just 4% of students continue to choose science or engineering, the NSF warns, there could be a cumulative shortfall of more than 400,000 science and engineering BAs through the year 2000. Half of all engineering students at the graduate and postgraduate levels already are foreigners. And this country is facing a shortage of 27,000 PhDs by the end of the century.

Economists are quick to point out that in these relatively high-paying fields, shortages are likely to push up salaries and attract more people. But there's little evidence that previous shortages enticed more students to scientific fields.

GROWING GAP. In addition, market mechanisms may not work quickly enough to remedy shortfalls of PhDs, who require an additional six to eight years of schooling. "Usually the decision to enter science is made in high school," says John H. Moore, deputy director of the NSF. "We need to do something today to get teens thinking seriously about careers in these fields—or we'll be in trouble."

The skills gap poses a threat to American society that goes beyond simply the economy. Currently, labor shortages in New England and elsewhere are driving up wages for jobs in fast-food eateries. If new workers don't become better qualified, this situation may change drastically as shortages move up the skills ladder. Many new job-seekers could wind up competing for a dwindling number of low-skilled jobs, while higher-skilled jobs go begging for want of qualified workers. That would drive down wages for low-skilled workers, who can least afford it, and raise wages for skilled employees, who are already better paid. The social consequences of this are clear. Warns Irwin S. Kirsch, a researcher at Educational Testing Service in Princeton, N. J.: "If we don't boost the skills of the bottom ranks of the work force, we'll have an even more divided society than we do now."

By Aaron Bernstein in New York and bureau reports

CHARTS BY RAY VELLA/BW

MODERN FAMILY
Karen and Melvin Petersen, who both work the swing shift at Echo Bay Mines Ltd.'s operation in Round Mountain, Nev., drop off toddlers Laura and Lori at the 24-hour, company-run day care center before going to work. If Karen stayed home, "we'd struggle along from paycheck to paycheck. It would be rough," she says. Two incomes let them save money for the girls' education

FOR AMERICAN BUSINESS, A NEW WORLD OF WORKERS

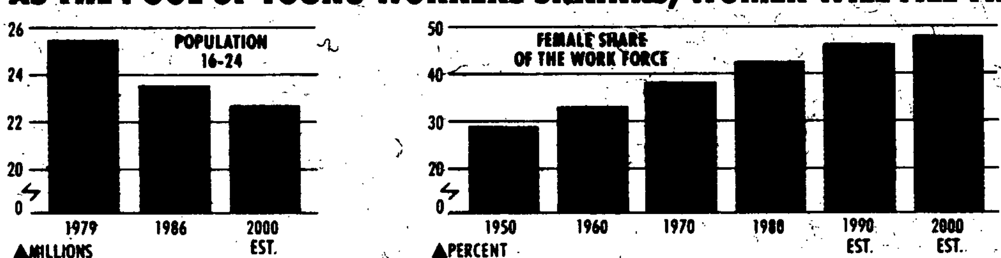
Employers must look to the nonmale, nonwhite, and nonyoung—and competition will be vicious

Once upon a simpler time not so long ago, "work force" meant white men in ties or blue collars. The image was never quite exact. One generation back, as the nation settled into postwar prosperity, 30% of all women worked outside the home—even if *Leave It to Beaver* reflected the cultural ideal of family life. "Negro," "Oriental," and "Spanish-American" workers always have helped to do America's work. But with a plentiful labor supply, few employers had to reach beyond the male Caucasian in his prime except for the least-wanted jobs. Indeed, by the late 1960s, as employers awarded self-winding watches to 65-year-olds, the first fresh-faced baby boomers were on their way to Personnel.

The last of that numerous cohort is now straggling into the world of paychecks and withholding taxes. The boss is losing that confident glow. The decline in birth rates after 1960 has slashed the numbers of young people available to fill jobs right up to the year 2010 and maybe beyond.

The years of picky hiring are over. Vicious competition for all sorts of workers—entry-level, skilled, seasoned—has begun. Employers must look to the nonmale, the nonwhite, the nonyoung. There may be a push for non-citizens as well:

AS THE POOL OF YOUNG WORKERS SHRINKS, WOMEN WILL FILL THE GAP, AND MORE WORKI



DATA: BUREAU OF THE CENSUS, LABOR DEPT.

- 73% of all working women a of childbearing age
- 60% of all school-age kids ha mothers in the work force, up from 39% in 1970
- Women with children under are the fastest growing segme of the work force

PHOTOGRAPH BY JAMIE TANAKA; CHARTS BY PAT JERINA

Over the next 10 years, predicts the Hudson Institute, an economic think tank, only 15% of work force entrants will be native-born white males.

Building a new, more diverse work force and making it tick will be one of Corporate America's biggest challenges in the decade ahead.

MOTHER, DAUGHTER, WORKER, WIFE

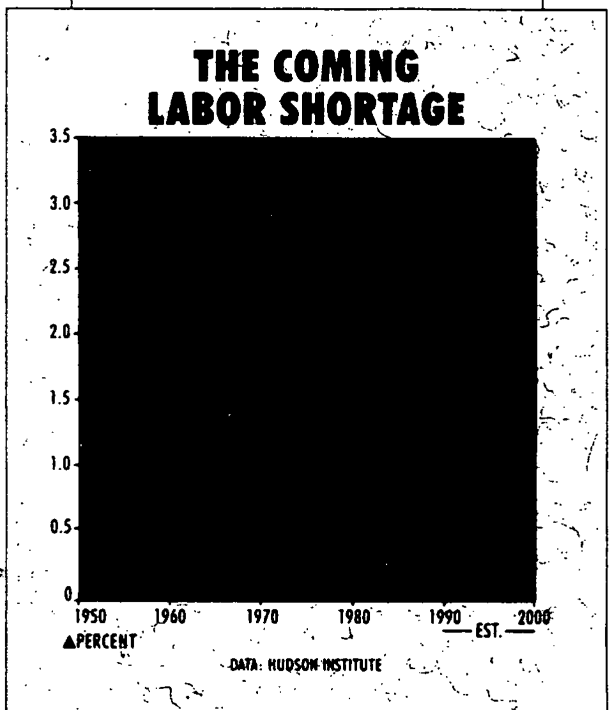
In the past 15 years, as women ventured into the workplace in growing numbers, it has been widely expected that employers would take major steps to accommodate their special needs. So far, though, employers have been able to hire 52% of all women without doing much very differently. That's partly because in a world of stagnant real earnings, women and their families have needed the money more than companies needed the women. Feminism, higher education levels, and rising expectations pushed women into the work force, too.

But as employers fish in a shrinking pool for new workers and try to retain experienced ones, women will be in a position to make demands. Companies will be forced to make it easier for workers to balance work and family.

Three-quarters of working women are in their childbearing years; more than half of all mothers work. Those with children younger than 6 make up the fastest-growing segment of the work force. For many such women, as well as for their spouses, balancing work life with parenting at a distance presents logistical challenges worthy of an air traffic controller.

It isn't only children. As the U.S. population becomes older—and by 2000, 51% will be between 35 and 54—more people must take responsibility for their parents. Americans are living longer, thanks to better nutrition and medical breakthroughs, but those beyond the age of 75 are often ill or infirm. Services are expensive, so care usually falls to family members—many of whom work. About 40% of workers over age 40 already provide care to parents, according to Anthony Gajda of Mercer-Meidinger-Hansen, an employee-benefits firm. About 12% of women who care for aging parents must quit their jobs to do so.

A growing body of research links employees' concerns for the care of children or elderly relatives with productivity losses from increased absences, tardiness, and stress on the job—and such time-wasters as excessive use of the phone. This holds for men in dual-career marriages as well as for single fathers and single sons. But it's particularly true for women. At Touche Ross & Co., Susan Schiffer Stautberg figures the average working woman spends 17 years raising kids and 19 years caring for aging relatives. Her grim joke: "Middle age is the 15 minutes in between."



The productivity issues are greater than a workday lost when the babysitter walks out or Grandma breaks her hip. Family leaves, allowing parents time off to care for a new baby or deal with a family crisis, help retain women workers and boost morale and loyalty among others as well. A 1986 report by the General Accounting Office indicated that such policies don't cost much even though temporary workers may have to fill in or other staff may have to work overtime. Legislation requiring employers to provide unpaid family leave to care for sick relatives or new babies is on Congress' agenda.

Child care, especially, is politically hot. A $2.5 billion bill sponsored by Senator Christopher J. Dodd (D-Conn.) and Representative Dale E. Kildee (D-Mich.) would set quality standards for child care, provide payment vouchers to families, and provide states with funds to add new facilities. Michael Dukakis backs the bill's concept without endorsing the dollar amount. George Bush wants a $1,000-per-child tax credit for poor families where at least one parent works, to be used for child care or to help mothers stay home.

'CARE-GIVERS.' There is widespread agreement that the federal government has some role to play, beyond the current $3.9 billion dependent-care tax credit, the $660 million spent on day care, and $1.5 billion for the Head Start early childhood program for disadvantaged kids. States, expanding their programs, are crying for more funding. California subsidizes day care for low-income toddlers. Texas school districts provide prekindergarten for 4-year-olds from poor families. Massachusetts is trying to increase the supply of child care with loans to build centers and grants to expand referral programs, train "care-givers," and pay them more.

The problem, however, is falling increasingly into the corporate lap. Boston University researchers Bradley K. Googins and Dianne S. Burden recently surveyed 1,500 workers in big corporations. Some 43% said employers and government should share responsibility for helping balance work and family life; 41% said companies should take the lead.

About 60% do offer some degree of work-schedule flexibility. But less than 5% of U.S. companies—a grand total of 3,300—help with child care. Most of those either allow employ-

MOTHERS WILL INCREASE THE DEMAND FOR CHILD CARE

▶ With divorce and out-of-wedlock births running high, the typical child born in America today will spend some time in a single-parent home. Such households, usually headed by women, are more likely to be poor. Children in poor families are at risk for school and social failure

▶ Only 5% of U.S. companies help their employees with child care. Only about 300 have helped start day-care facilities

▶ In 1982, a quarter of all mothers not in the work force said they would work if adequate child care were available

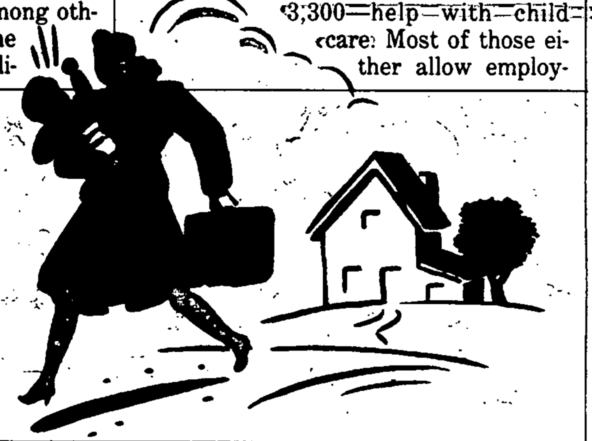


CHART BY RAY VELLA/BW

ees to save tax dollars by setting aside pretax income for day care in flexible benefit plans, or they provide information and referral advice. Only 250 or 300 companies have helped start child-care centers.

It's likely that more women would enter the job market if they could find good child care. In the 1982 census, 26% of all nonworking mothers with preschoolers said they would look for work if "reasonably priced child care were available." An additional 13% said they would work more hours. If half the women claiming they are so constrained went to work in the 1990s, the labor force would gain 850,000 workers, notes Columbia University economist David E. Bloom.

A BENEFIT. Indeed, some companies are looking at child care as a recruiting device, especially in clerical, food service, and hospital jobs, which depend on women workers. But the impetus is growing elsewhere. Faced with a local labor shortage, Echo Bay Mines Ltd. at Round Mountain, Nev., has enticed parents to hire on for swing shifts by keeping open its on-site day care center 24 hours a day, seven days a week.

Eastman Kodak Co. helps its American employees look for child care. In addition, the company is experimenting with job-sharing. Two Rochester (N. Y.) mothers with young children split the title "professional recruiter"; their 24-hour stints overlap on Wednesdays. Kodak allows up to 17 weeks of unpaid leave to care for a spouse, parent, sick child, or new baby, including adopted or foster children. "We have a lot of money invested in training. This is protecting our investment," declares Mary J. Harrington, Kodak's corporate employee relations director.

Corporate efforts to help workers cope with elderly parents are still primitive. Most women must find ad hoc solutions. A quarter of those responsible for aged parents take extended leaves or cut down their work hours. The challenge is to keep them on the job as much as possible by providing social supports for the parents. As the pressures of labor shortage build, companies will also have to see to it that employees don't forfeit seniority or status if they are forced to take time off for family reasons. "I really think demographics are destiny here," says Dana E. Friedman, work and family research director at the Conference Board.

DROPPING IN

After Bostonian Sandra Brown, single parent of three, told her welfare caseworker she was "job-ready," she enrolled in a program at Roxbury Community College where she's studying word-processing and finishing high school. Her employer is helping with the tuition bills

YOUNG, TROUBLED, AND IN DEMAND

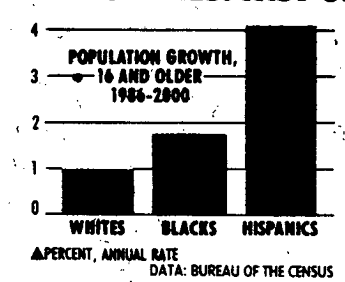
It has been a long time since America's population profile bore much resemblance to the party that landed at Plymouth Rock. Now this nation of ethnicity and social flux is changing anew. It is becoming less white and more Spanish-speaking. Birth rates among blacks exceed those of whites. Immigration, mainly from Latin America and Asia, has accounted for a fifth of America's population growth in the 1980s. Compared with the native-born, immigrants are younger and their families are larger. The youth cohort of the work force is shrinking, but more of its members will be black, Hispanic, or Asian.

These changes have significant implications for the U. S. work force. A disproportionate number of these youths are growing up in families that are poor or headed by single parents. In minority communities, many of today's adults lack the skills to find decent employment. Their kids face worse prospects at a time of dramatic technological change. A disturbing new term, underclass, describes some who are from such disorganized backgrounds that—without intervention or a social miracle—they may never be employable (page 122).

Many young people—especially minorities—are caught in a vicious cycle. About a quarter of all kids are born out of wedlock to parents who "are poorly educated, frequently young, and unskilled," says George Washington University's Sar Levitan. In the U. S., about 44% of all marriages fail. Female-headed households are more than four times more likely to be poor than are two-parent families. A startling one in four members of the Class of 2000, now entering first grade, is living in poverty.

Part of the problem is child support. Fewer than half of fathers not living with their kids pay anything toward their keep. In 1985 more than half of all

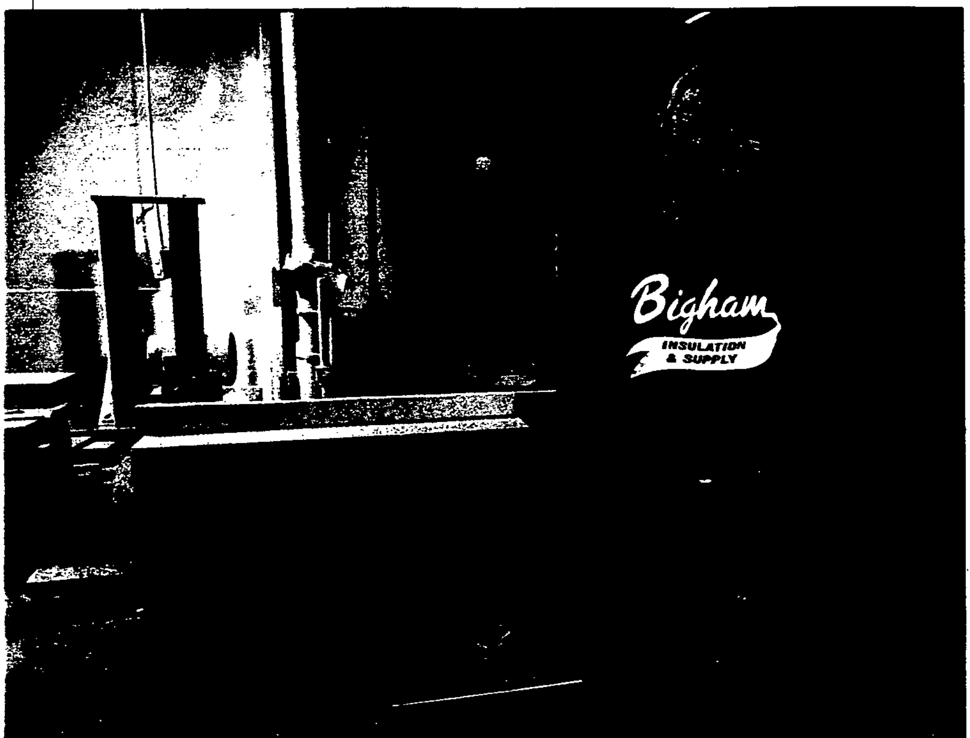
MINORITIES: FAST GROWTH AND TOO MANY DROPOUTS



▶ Among white 18- to 21-year olds, 13.6% have dropped out of high school. Among blacks the rate is 17.5%, among Hispanics 29.3%

▶ The high school dropout rates in major cities, where minorities are concentrated, range from 35% in New York to as high as 50% in Washington

PHOTOGRAPH BY SETH RESNICK, CHART BY PAT JERINA



RETIRED? RETOOL *Leon Levitt, 81, retired from his sales job a decade ago, but six months later he went back to work as a trainee machinist. "Work adds life to your years—and it actually adds years onto your life," he says. As the work force ages, more and more résumés may resemble that of Levitt, who just cut back his workweek to 49 hours from 55*

mothers with child-support orders received less than the full amount due. The average annual payment was $2,315. Another aspect of the poverty problem is women's pay. Women's earnings average $16,232, 70% of men's. Many mothers work part-time for far less pay.

Harvard sociologist David Ellwood predicts that more than two-thirds of children who grow up in a single-parent household will spend at least some of their childhood in poverty. They are three times more likely than others to drop out of school, and they are more deficient in skills. Black and Hispanic children, while a minority of the poor, are nearly three times more likely to be poor than whites. A National Assessment of Educational Progress found that only 60% of white young adults could locate information in a news article or an almanac. The number was 25% for blacks and 40% for Hispanics.

Labor shortages in the future could present an unprecedented opportunity to improve the lot of the poor. "The new workers—although they are from groups disadvantaged by discrimination, lack of education, and language barriers—will be in very great demand," says Labor Secretary Ann D. McLaughlin. Already employers are having to reach further and further along the labor queue. Where necessary, they are patching up the ragtag skills they find there, sometimes at huge expense (page 134).

Social thinkers say early intervention, with such proven child-development programs as Head Start—or even earlier with nutrition programs and parenting classes—is the real ticket to building a competent work force over time. Half of all teenage mothers eventually escape poverty through education, with measurable improvements in their kids' achievement and prospects, notes economist Andrew Sum of Northeastern University. "If minorities are to succeed, we have got to start educating children much younger and work through their parents," says Gloria G. Rodriguez, director of a support and training program for poor Hispanic families in San Antonio. Despite its track record, only 18% of eligible children are served by Head Start, due to inadequate funding.

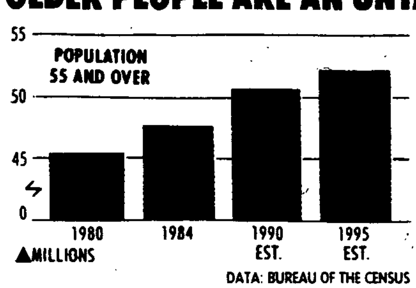
The challenge is clear. If minority skills are not upgraded, they will deteriorate further. Companies will be forced to substitute capital for the unskilled labor. Technology, after all, has many faces. Given skilled workers, it can upgrade a job task and add value. Or, to cope with work-force shortcomings, it can be used to "de-skill." The classic example is McDonald's Corp. Dependent on young workers with poor skills, the hamburger chain has replaced words on the keys of its cash registers with pictures. That may work for McDonald's. But for society to take that path implies low wages and a declining standard of living.

BRINGING THE RETIRED BACK FROM RETIREMENT

In our time, the shrinking of the American manufacturing sector has written off a generation of middle-aged blue-collar workers caught between the foundry and the computer. And even as the economy faces labor shortages at all levels, the most striking employment trend in recent years has been a shift to early retirement. Only about 15% of men over age 65 are in the work force today, down from 25% in 1970. Only 68% of those age 55 to 64 still work, compared with 83% two decades ago.

Such trends were perhaps understandable as baby boomers crowded into the workplace and companies downsized. Today, though, it is waste on a vast

OLDER PEOPLE ARE AN UNTAPPED RESOURCE



DATA: BUREAU OF THE CENSUS

- ▶ In 1950, for every retiree, there were 17 Americans at work. By 1992, it will be 1 retiree for every 3 workers
- ▶ In 1984, only 68.4% of all men aged 55 to 64 worked. If retirement trends continue, that will drop to 62.6% by 1995

PHOTOGRAPH BY GERALD DAVIS; CHART BY PAT JERINA scale. A typical American who has reached the age of 65 can expect to live an additional 17 years. By 2003 the U. S. National Center for Health Statistics predicts life expectancies at birth will be 84 years for women and 10 years less for men. Today the 58-year-old who takes early retirement is essentially middle-aged, and retirement may last half as long as his or her work life did.

The good health, skills, and work histories of the "young old" can help the nation out of its demographic fix. "People should work longer and be productive longer. We should get away from the rigidities that go along with age 65," argues Alan Pifer, chairman of the Southport Institute for Policy Analysis.

Pifer, who directed the Carnegie Corporation's Project on Aging, advocates continual education and retraining throughout one's working life. The emphasis should be on that restless age around 50 when the kids are gone and "you've gone about as high as you're going to go in the hierarchy. It would be nice if a lot of people could be repotted," he suggests. As a vision for the nation, that projects a huge agenda: reordering what is now an ad hoc and haphazard retraining process. It also requires new benefits systems, such as portable pensions, to erase disincentives for middle-aged workers to move on.

Many over-60s, furthermore, don't want to be put out to pasture for 20 years. Smart companies are finding ways to retrain and employ them. In Florida, where 18% of its population is over 65, the future is now—fast-food chains recruit workers in retirement villages. Last year, Kelly Services Inc. in Troy, Mich., put out a call for workers over 55. Now they're 8% of the "temp" rolls. In Boston, one BayBanks Inc. unit has hired 45 retirees as clericals, tellers, and clerks since last November.

Keeping older workers in the job market won't be easy. Says Census Bureau forecaster Cynthia M. Taeuber: "They can afford to retire and will." The elderly have escaped Reagan-era spending cuts. Social Security, medicare, and medicaid spending on nursing homes have eliminated most poverty among the old. Still, retirement can be boring. If business makes work attractive, the oldsters may come back in droves.

THE U.S. COULD LOWER THE DRAWBRIDGE AGAIN

Faced with labor shortages in earlier times, America has opened its borders. Immigration is still a policy option—the wild card in the labor-market outlook.

For Cornell University economist Vernon M. Briggs, unleashing even more immigration will stall efforts to integrate women, blacks, and other minorities into the economy. In a recent book, *Immigration Policy and the American Labor Force*, Briggs argues that minority youths could soon be competing with immigrants—legal and illegal—for entry-level jobs. Rand Corp. researchers say there's no evidence of this yet. But they warn that U. S.-born Latinos must improve their skills to qualify for the high-tech jobs of the future or compete with new immigrants for low-paid jobs.

Today's immigrants, on average, are less skilled than the native-born. Most lack a high-school education. Only 20% are admitted because their skills are in great demand. But the criteria could change toward more preference for skills. This year, U. S. hospitals, to allay shortages, will hire 20,000 foreign nurses on five-year visas.

The idea of hospitals staffed by skilled foreign professionals and low-paid native-born janitors doesn't sit well with some like Pat Choate, TRW Inc.'s futurist. "Ultimately we have to have an economy that works—and do everything with our own people," he says. Yet, he adds, the U. S. should "use its incomparable advantages" to attract the world's talent. Foreigners here to study engineering, say, could be required to stay and work.

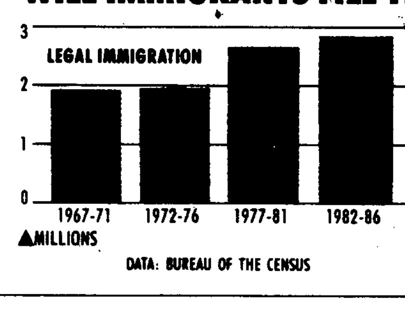
Unlike immigration policy, population trends hold few surprises. "We have a lot of control over how demography hits us. It's more of a glacier than a thunderbolt," reflects Jack A. Meyer, president of New Directions for Policy, a Washington think tank. "If we sit back, we're in for some problems." The danger is that the U. S. will fail to address its demographic challenges in time.

By Elizabeth Ehrlich in New York, with Susan B. Garland in Washington, and bureau reports

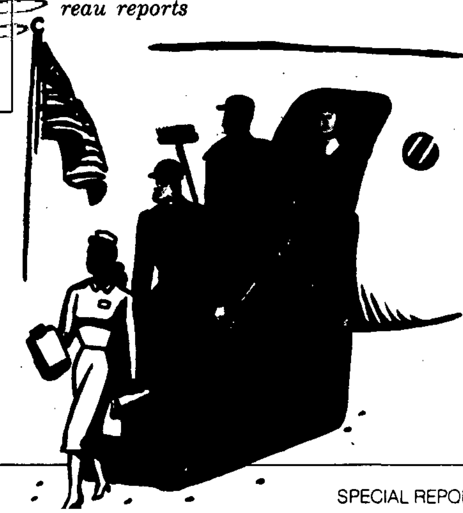
NEW CITIZENS

Opening America's "Golden Door" has helped with past labor shortages, but swelling waves of immigration might serve to stall efforts to integrate blacks, Hispanics, and women into the economy more effectively

WILL IMMIGRANTS FILL THE JOB GAP?



- Only 20% of legal immigrants are admitted for job skills. Family ties or refugee status are the usual criteria
- Over half a million legal immigrants arrive each year—more than at any time since the 1920s.
- Some 2 to 4 million illegal immigrants live in the U.S.



PHOTOGRAPH BY WOLF/PICTURE GROUP; CHART BY PAUL GRANGE/BW

PHOTOGRAPHY BY SETH RESNICK

WHY THE UNDERCLASS CAN'T GET OUT FROM UNDER

In an era of prosperity, legions of welfare mothers and inner-city youths face dead-end lives

Terence Maclin often dreams of escaping Milwaukee's tough North Side. "I plan to build my own business," says the 18-year-old leader of a youth gang known as Two-Four. "Then I can have people working for me."

Maclin's fantasy of the straight life is likely to remain just that. A high school dropout who's been in and out of juvenile institutions since he was 9, Maclin can't read at a sixth-grade level. He's enrolled in a high school equivalency program but chronically cuts classes. And Maclin recently quit the latest in a series of temporary jobs after a dispute over pay.

In the past, unskilled and poorly educated black youths such as Maclin had a shot at a decent-paying job. But now, many of the breweries that made Milwaukee famous are shuttered. The city's employment boom has been concentrated largely in jobs that require skills far higher than Maclin's. "The odds are very strong that Terence will never make it," says Charles Meyer, a program director at the Westside Center, where Maclin sometimes hangs out.

Young people such as Maclin can be found in decaying inner cities all over America. They represent a chilling phenomenon: a growing black underclass isolated from the nation's economic anc social mainstream. This legion of chronically unemployed males and welfar mothers, concentrated in crime-ridden desperately poor, inner-city neighbor hoods, numbers at least 1.5 million.

That figure continues to mount de spite a six-year economic expansior "The rising tide of prosperity left thos without a high school diploma ur touched," says John D. Kasarda, a economist and chairman of the Unive sity of North Carolina's Sociology Dep "They were not even on the boat."

Although the underclass is relativel small in size, it reverberates across ge graphic, class, and racial lines. Dru related crimes and gang wars are sha ing the complacency of middle-class communities. As labor markets tighten, business has begun to worry about the growing pool of disaffected youths ill-equipped to take on new jobs. And the costs of coping with society's failures are staggering. The nation spends $20 billion annually on prisons. Caring for low-birthweight babies born to mothers on welfare who are high school dropouts costs another $188 million per year.

HANGING OUT: *Minority youths in urban ghettos such as Dorchester, Mass., (left) often eschew work even where it's available. For some, fast-food jobs paying as much as $7 an hour don't compare with the enticements of life on the street*

The growth of the underclass is the result of many complex forces—from racism to the frustration and apathy that persistent poverty can provoke. "It's very difficult to point to any one thing in an environment where so many things are hostile," says David T. Ellwood, professor of public policy at Harvard University. "But everyone agrees that all these negative things start to feed on each other, making it more difficult to latch on to any simple solution."

'KNOWLEDGE-INTENSIVE.' Among the most potent factors is the two-tiered economy. The economy's general weakness during the 1970s and early 1980s "hit people at the bottom of the barrel the hardest," says Brookings Institution economist Robert D. Reischauer. Starting in the 1970s, white women, baby boomers, and immigrants flooding the job market have made it even more improbable that less-educated blacks at the end of the hiring queue will be chosen for jobs.

Meanwhile, in the past two decades, manufacturing industries virtually vanished from the cities. Some closed down, skewered by international competition. Others moved to convenient, sprawling, suburban tracts. Just 25 years ago, half of Milwaukee's jobs were of the high-paying blue-collar type. Today less than 30% are. In other cities, the falloff is even more dramatic.

Many of the newer jobs are "knowledge-intensive" white-collar posts, which require at least some college education. As a result, employment of the poorly educated has fallen sharply. That is particularly true of adult black males who live in cities. Only half of these men work, even part-time, as compared with 80% in 1969, according to Kasarda.

University of Chicago sociologist William Julius Wilson, author of *The Truly Disadvantaged*, argues that antidiscrimination legislation and affirmative-action programs may have inadvertently compounded the problems. Middle-class blacks, who could take advantage of new job and housing opportunities in the 1960s and after, fled the ghettos, leaving local schools to the poor and removing important role models—adults who work at steady jobs. Those left behind no longer hear about work opportunities. Even the habit of waking up to a ringing alarm clock is alien. "Youngsters are growing up in a community where people's lives aren't organized around work," Wilson says.

Even when jobs are available, few are perceived as true opportunities because pay is low and prospects for promotion are virtually nil. "Places give you a hassle, say they are not hiring and come back in a few months," complains Corey Newsome, a former member of Maclin's gang. In some tight labor markets, fast-food restaurants pay nearly twice the minimum wage, but local youth unemployment rates remain high. "Fast-food places aren't paying enough, not for what they want you to do," says Newsome. The lucrative alternatives—drug dealing, pimping, and theft—have no shortage of recruits, though.

The allure of criminal activity is often attributed to the disintegration of the black family. In 1960, 20% of black families with children were headed by women. Today, half are.

WELFARE TRAP? Contrary to popular perception, the birth rate for unmarried black women actually has declined since 1960. But the marriage rate among black women has dropped even more sharply—as has the birth rate to married women—so single women still bear more of the community's babies. For Wilson, the explanation is the shortage of "marriageable" black men. "The increasing inability of many black men to support a family is the driving force behind the rise of female-headed households," he says.

Some social scientists, though, believe that cultural factors have become at least as important as economic ones. "If you've got full employment, you are still going to have an underclass," argues social scientist Charles Murray. "We do not know how to change the attitudes of even adolescents who have grown up in the underclass." Murray's 1984 book, *Losing Ground*, faulted federal welfare policy for discouraging marriage and work while rewarding out-of-wedlock childbearing and unemployment.

"It's now more acceptable than ever for a father to ignore his responsibilities," adds Stuart Butler, director of domestic policy studies at the conservative Heritage Foundation. "The assumption is that the government will take care of the problem."

Certainly, most welfare programs do little to encourage work. When recipients who want to work weigh the low-paying jobs for which they're qualified against the loss of welfare benefits, medical benefits, and the additional burden of child care, many figure they're better off staying home. "The system goes around and chokes you," says Bonita Williams, a 24-year-old mother of six who lives at the Milwaukee Family Crisis Center. Child care and job training are a focus of the new $3 billion welfare reform bill pending in Congress.

SAVE THE CHILD: *Improved services for children, such as day care for disadvantaged kids in New York's East Harlem, may be the surest way to break the cycle of poverty*

ROSEN/PICTURE GROUP

Whatever the causes of the underclass phenomenon, there is no question that the consequences for black children have been disastrous. Three-quarters of them spend at least some time in poverty, compared with one-fourth of white children. One-third of black kids are poor for seven years or more. And those growing up poor are more likely to become parents themselves at an early age. In turn, their babies are at risk from low birth-weight, which tends to increase the chances of brain damage and learning disabilities.

Dr. James P. Comer, professor of child psychiatry at the Yale Child Study Center, says children of uneducated parents are less likely to develop the early language skills and excitement for learning that will prepare them for school. Fully 60% of daughters of single women who are on welfare for 10 years or more will find themselves on welfare for at least a year during adulthood. Urban Institute economist Isabel V. Sawhill worries that underclass communities will be "breeding grounds for another generation of poor people with little hope of becoming part of the mainstream."

To break the chain, some black leaders are calling on the black middle class for assistance. Others are saying that poor blacks themselves must accept greater responsibility—and that their community offers positive models, too. "There are kids who are not on drugs and teenagers who are not getting pregnant," says Robert L. Woodson, president of the Washington-based National Center for Neighborhood Enterprise, which encourages tenant management of public housing projects as well as other community self-help programs. "We need to learn from people who are successful."

Improving the schools that poor children attend is critical as well (page 129). So is reaching the child before school. Last year the Committee for Economic Development, a corporate-funded research group, recommended $11 billion in additional spending on prenatal care and nutrition for pregnant women and preschool education for the nation's most disadvantaged kids. Their point is that intervening at an early age may well improve a child's lifelong prospects (chart, page 123) and save money on other social programs, such as welfare, down the line.

Some experts believe that expanding programs such as Medicaid and Head Start is only a first step. Harvard lecturer Lisbeth B. Schorr says that social service agencies have to do a better job of coordinating the services they deliver to poor families, who often suffer from a spectrum of problems. An agency that provides preschool education to a child without addressing a parent's depression or the child's nearsightedness won't help much. "The programs that work best are comprehensive and intensive," she says.

INTIMIDATED. Encouraging the employment of young adults is another necessity. In Boston, a successful business-backed program is teaching 150 poor adults such workplace skills as résumé-writing, interviewing procedures, and telephone etiquette. James B. Marshall Jr., who is in charge of the program, says many youths are intimidated by the prospect of leaving isolated ghettos such as Roxbury to work in a downtown glass tower. Other programs that provide intensive remedial education, job training, and child care have helped long-term welfare mothers enter the labor force.

North Carolina's Kasarda believes that suburban employers must reach out as well through job information networks and provide transportation pools. Marshall says that employers, who are often reluctant to hire inner-city youths, "have to understand that their personnel in the next 10 years is going to be different from what they're used to."

This realization is the product of demographic trends that in some areas are already producing labor shortages among young, entry-level workers. However, federal policymakers, worried about yawning budget deficits, seem unlikely to launch a major new effort to address the problems. There is little political gain to be had from aiding the powerless underclass, and indeed, the Presidential candidates have not taken up their cause.

Yet, argues Princeton sociologist Richard Nathan, "if there was ever a time to work at these issues, it's now, when there's a declining labor force." If America lets this opportunity pass, it will do so at its own social and economic peril.

By Susan B. Garland in Washington, with Lois Therrien in Milwaukee and Keith H. Hammonds in Boston


SECOND GRADE IN TEXAS

DAEMMRICH/CLICK

AMERICA'S SCHOOLS STILL AREN'T MAKING THE GRADE

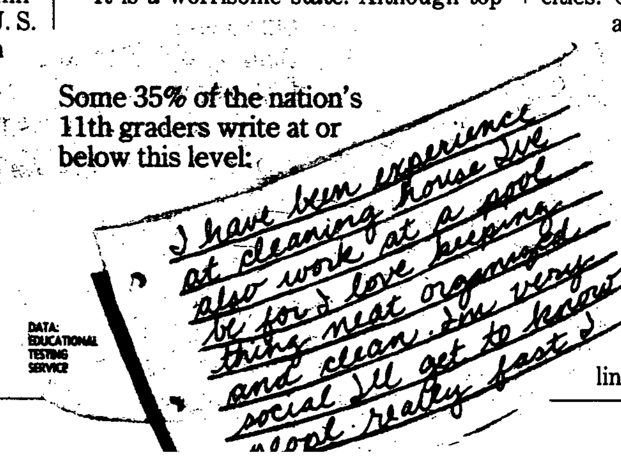
A quarter of high school grads are only marginally literate—and reformers disagree on what to fix

Americans have always asked a lot of their schools: Civilize the frontier with the three Rs, assimilate immigrants, secure U. S. military might by bolstering high school science. At its most fundamental, democracy aspires to produce literate, responsible citizens. But social and economic change has continually reshaped what school is expected to do—from training homemakers to fostering integration.

A new call for school reform is ringing across the land. This one is different: The nation's economic problems are being placed at the schoolhouse door. Economic growth, competitiveness, and living standards depend heavily on making investments in human capital. That means attending to the state of America's schools.

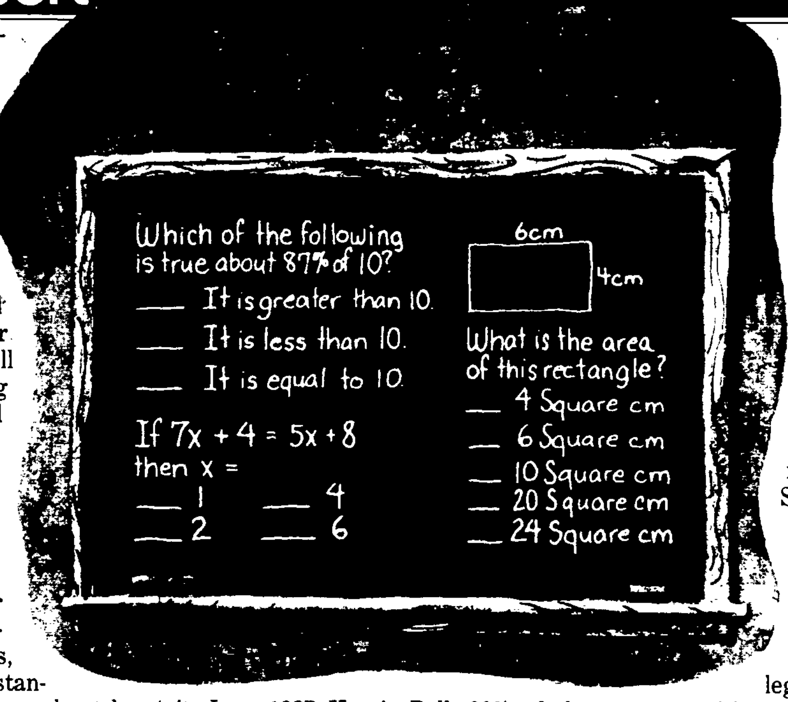
It is a worrisome state. Although top-ranked U. S. students compare well with their peers in industrialized nations, the rest do worse. One million young people drop out of high school every year. Rates approach 50% in some inner cities. Of the 2.4 million who graduate, as many as 25% cannot read or write at the eighth-grade, or "functionally literate," level, according to some estimates. Most 17-year-olds in school cannot summarize a newspaper article, write a good letter requesting a job, solve real-life math problems, or follow a bus schedule.

What's needed is a do-or-die battle to turn the schools around. But the front lines are weary—and fresh recruits



DATA: EDUCATIONAL TESTING SERVICE

are scarce. Between retirement and normal attrition, America could need to replace 1 million teachers—half the current force—before the end of the century. But only 8% of today's 1.6 million college freshmen say they're interested in teaching, and half of those will typically change their minds. Worse, half of all new hires leave teaching within seven years. And with shortages of educated workers looming throughout the economy, schools will be competing with other sectors for quality candidates.



'LEMONS.' The demand for school reform has been percolating since the mid-1970s, when declining results on standardized tests raised concerns about basic skills. It exploded in 1983, after the National Commission on Excellence in Education released *A Nation at Risk.* Warning of a "rising tide of mediocrity" in public schools, it called for rigorous academic standards and a standardized, traditional high school curriculum of history, Western literature, foreign languages, science, and math.

Critics still blast the report as elitist or oversimplified. But few deny that our schools need fixing. "If a company was turning out 90% lemons, we would rethink the whole production process," says Albert Shanker, president of the American Federation of Teachers (AFT). "This is not a question of a few recalls. The system is producing lemons."

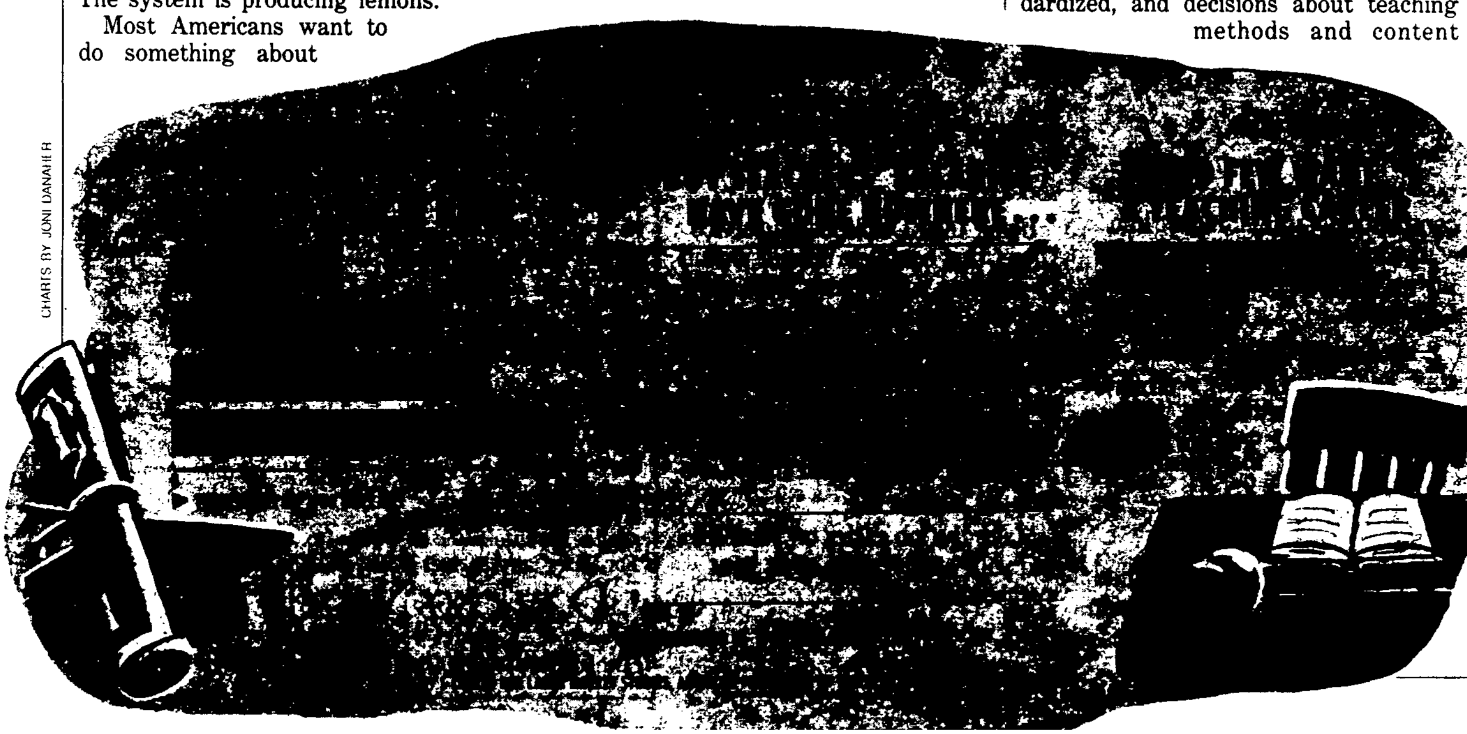
Most Americans want to do something about it. In a 1987 Harris Poll, 90% of those surveyed endorsed the principle that "for the U. S. to become competitive, we must pay more for quality education" and get "tangible results."

The tricky question: how to get those results. Educators are sharply divided. Some endorse the call for strengthening the traditional curriculum. AFT's Shanker would give teachers a freer hand to restructure the classroom environment. Others say schools must take on new family-like roles to nurture the growing numbers of poor or troubled kids in the system.

Predictably, conservatives deride the idea that schools should depart from traditional teaching formulas to suit individual learning styles or to respond to students' social problems. They stress the importance of expectation and high standards, holding up such examples as William Lloyd Garrison School, where South Bronx kids from low-income families test at or above grade levels in reading. "You don't change the principles of medicine when patients have poorer health or a poorer state of nutrition," insists outgoing Education Secretary William J. Bennett. When Bennett urges school overhaul, he means a shift of power from the educational Establishment—teachers' unions, administrators, and colleges of education—to parents, citizens, and state legislatures.

Traditionalists point to Japan, where students seem to perform as well as or better at all levels than U. S. kids. Japanese mothers are highly involved in their children's schooling, teachers are respected and well-paid, the school year is longer, and more homework is given. "The Japanese system," says Bennett, "is pretty close to a system of education that is universal and of quality."

MASS PRODUCTION. Those for whom tradition is not a panacea say American schools must change with the times. They argue that the public school system was organized along factory lines in the 1920s by a society enchanted by mass production. Classrooms were standardized, and decisions about teaching methods and content



CHARTS BY JONI DANAHER

were passed from state offices to superintendents to principals and finally to the chalk-wielding line workers: teachers. After a 50-minute class, the bell rang and pupils moved on. "If the student is viewed as an inanimate object moving on an assembly line, this makes perfect sense," Shanker says.

'THOROUGHLY DISCREDITED.' Successful companies, as Xerox Corp. Chairman David T. Kearns notes in *Winning the Brain Race*, "have discarded the archaic, outmoded, and thoroughly discredited practices that are still in place in most of our large school districts: top-down, command-control management—a system designed to stifle creativity and independent judgment."

To education reformers, it is significant that the Japanese themselves are beginning to worry that their nation's learning style, heavily based on rote and memorization, doesn't promote creative thinking and flexible skills. "In Japan they do harder and longer what we do, and get better results," argues Adam Urbanski, president of the Rochester (N.Y.) Teachers Assn. "The purpose of reform is to do it differently—to challenge the fundamental structure."

Indeed, concerns about basic skills already have produced some improvements along traditional lines. Educational Testing Service (ETS), a testing-and-research organization based in Princeton, N.J., reports that test scores in math, reading, computer literacy, and science have gone up since the mid-1970s. Most of that came from minority kids, who increased from 16% to 23% of all schoolchildren. But "the bad news is that we haven't budged in improving higher-order skills, critical-thinking skills," says Archie E. LaPointe, head of ETS's National Assess-

BUSINESS IS BECOMING A SUBSTITUTE TEACHER

New York's Chemical Bank has an alarming problem: It has to interview 40 high school graduates to find one who makes it through the bank's training program for new tellers. The Chemical reaction? The bank has adopted two schools and is helping form a high school debating league. Chemical Chairman Walter V. Shipley believes parental involvement is the ideal: "Unfortunately you don't always have that commitment from parents, so business must try to find more ways to fill the gap."

Passion for school reform is gripping Corporate America. It is marshaling resources, energy, and influence to improve education. Hundreds of partnerships are blooming between school and business. They run the gamut: gifts of equipment, paid work-study programs, teacher training, and literacy volunteers. But there are questions about the effectiveness and reach of these programs. The biggest unknown is whether business will have the patience to stay the course.

Many join-a-school partnerships have been forged. In 1981, New York industrialist Eugene Lang addressed a sixth-grade class at his Harlem alma mater and offered college scholarships to all pu who stayed in school. He paid for rem al and counseling staff and became volved with the kids. Of the 54 origi pupils who remained in New York, 50 ished high school, and 34 are in colleg

The recipe has been followed by cor rations as well. More than 1,000 Dal businesses have adopted the city's public schools. The sponsors provide unteers and donate funds and equipme At Tenth Street Elementary School in I Angeles, 125 Arco Oil & Gas Co. empl ees—from secretaries to top brass—h out in the classrooms, tutoring immigr and minority students in English, ma geography, and computer sciences.

Pacific Northwest Bell Telephone Co. Seattle adopted a local school. But t modest involvement mushroomed in 1 thanks to Gary A. Frizzell, PNB's new e cational relations manager, who happen to be coping off-hours with an apathe 14-year-old son. He tried to reach the b with heart-to-he talks and a series letters—which evolv into *Choices*, an o reach program enco aging kids to stay school. Voluntee from 65 participati companies have dressed more th 300,000 eighth a ninth graders in states. "Business the user of educatio product—students, and it ought to repl ish," says Frizzell, now heading an edu tion foundation for PNB's parent, U West in Denver.

Businesses are focusing on teachers, well. Two years ago, IBM Vice-Chairm Lewis M. Branscomb headed a Carne Forum task force that recommended hi er pay, more autonomy, and national co petence testing for teachers. Honeyw Inc. sponsors a summer Teacher Aca my, where Minneapolis high school m and science teachers team up with

STEVE SMITH

SOWING SEEDS *'Adopt-a-school' programs are sprouting up. At Los Angeles' Tenth Street Elementary School, an Arco professional leads a nature class*

Declassified in Part - Sanitized Copy Approved for Release 2012/10/10 : CIA-RDP90-00530R000300600001-7

ment of Educational Progress (NAEP).

It's higher order skills that a sophisticated economy increasingly needs. "Over the long term, basic skills only give you the right to compete against the Third World for Third World wages," notes Marc S. Tucker, chairman of the National Center on Education & the Economy in Rochester, N.Y. To achieve more advanced goals, "I'd like to see a lot less of kids sitting quietly in rows and a lot more deeply engaged in projects in which they are heavily invested, which require them to learn a lot."

Tucker maintains that most kids don't learn well by listening to a lecture or reading the text. He and others advocate peer tutoring, team learning, simulation games, and other nontraditional approaches, particularly for disadvantaged children for whom formal classrooms are threatening ground.

So passionate is the debate that reform is threatened with paralysis by analysis. No single educational philosophy can be expected to win the day in a country as heterogeneous as the U.S. What might work in a high-income suburban school district could create havoc in an inner-city ghetto. And there are no quick fixes. "Imagine a business ... with 50 totally autonomous divisions and 16,000 subsidiaries, each with its own board of directors and labor agreements," says retired Procter & Gamble Chairman Owen B. Butler. "No effort to change that culture can be expected to succeed in five years."

TEACHER TROUBLE. Whether it's traditionalism or radical reform, better schools require more and better teachers. And here there is trouble. Morale among teachers, who are poorly paid and garner little esteem, is at low ebb. For years the numbers of college students entering teaching has been in decline, and those who do choose teaching often come from the bottom quartile of their college class. The shortage is acute for teachers of math and science and for the minority teachers desperately need-

searchers to develop class projects using state-of-the-art computers and equipment.

Minnesota companies have a tradition of social investing. ~~Honeywell has provided equipment, volunteers, and technical advice to schools for 20 years.~~ Last year it gave $7.8 million, about 2% of its U.S. pretax profits, to philanthropy. Of that, $2.9 million went to education.

Not all educators welcome corporate largesse. Some worry there will be strings attached. "We've been in the business of education for 126 years," says Robert Astrup, president of the Minnesota Education Assn., which represents 80% of the state's teachers. "We would like businesses to be advocates—not leaders." Joan Canella, director of the Bank Street School for Children in New York, sees it another way: "The best thing business can do for schools is make it possible to combine work and family, allowing working parents to get involved with the schools."

HARD KNOCKS. Dade County, Fla., hosts one such experiment. To ease overcrowding and reduce working parents' stress, the school system set up minischools in workplaces. Last fall, American Bankers Insurance Group Inc. opened the first "satellite learning center" to serve employees. It built a $350,000 schoolhouse for 50 kindergarteners and first graders. The county provides teachers and books.

In Chicago, local companies, including Borg-Warner, Sears, Johnson Publishing, and McDonald's, opened their own school. Privately funded, tuition-free, the Corporate/Community School of Chicago is to be a laboratory-in-action addressing the problems of inner-city schools. Its enrollment, now at 150, will grow to 300 children, from nursery school to eighth grade.

Perhaps the most obvious role for business is to help bridge the gulf between high school and what comes after. That is, not pushing old-style vocational education but bringing some notion of work life and promise of opportunity to kids floundering on the margins. That was the plan behind the Boston Compact, a 1983 agreement between the Private Industry Council (PIC) and the school system to offer summer and permanent jobs in exchange for improving the schools.

Last year, 669 Boston companies created summer jobs for 3,000 students, at an average hourly wage of $5.39. Napoleon "Eddie" Santos, 17 and a senior at Dorchester High School, got his first real job that way. This summer he was one of four full-time interns apprenticing in maintenance engineering at Beacon Co. Under a separate program, companies hired 1,000 high school graduates, 72% of them black or Hispanic, into permanent jobs. PIC also offers jobs and counseling to dropouts, and guidance to ninth graders.

JOB TRAINING

Boston's intern program is giving many poor youths their first jobs. Eddie Santos (right) is an apprentice maintenance engineer

ETH RESNICK

UNFAIR BURDEN. Rebuilding a school system proved tougher. Reading and math scores rose modestly. Attendance went up. But Boston's dropout rate is stuck at 46%. "The business community has done its job. I think everyone's disappointed on the school side," declares Edward E. Phillips, chairman of insurer The New England. To do more, he says, "would be a pretty unfair burden on businesses. We pay hefty taxes to support the system already."

But some corporate leaders insist an even broader burden must be borne. Harold W. McGraw Jr., chairman emeritus of McGraw-Hill Inc., which publishes BUSINESS WEEK, heads the Business Council for Effective Literacy, aimed at millions of U.S. adults who lack functional reading skills. Owen B. Butler, retired chairman of Procter & Gamble Co. focuses on the very young: "The best way for business to invest in educating the disadvantaged is to reach them early. By age 5, they're already so deprived they can't benefit from schooling," he says. Butler lauds such efforts as ~~Success by Six. In that program, Minneapolis employers, civic groups, and schools spent $647,000 this year on early-childhood health and education through the local United Way.~~

A departure from corporate practice? Not for Butler. "It took us years to develop Tartar-Control Crest, years to make a profit on our investment. So we understood the economics of early childhood programs." For him, the long view on education is just good business.

By Elizabeth Ehrlich in New York, with bureau reports

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ed in poor communities as role models.

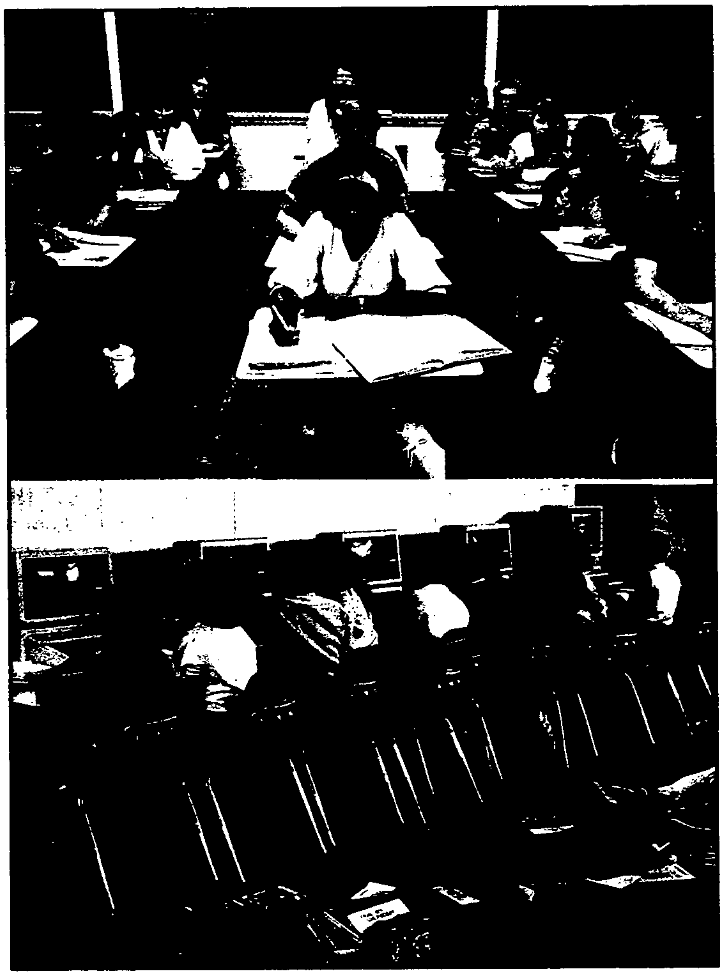
Increasing pay can help recruit and retain teachers. But so far efforts in that direction have raised average starting salaries only to the $18,000 range—hardly enough to entice talented students away from other professional tracks. A few school districts, though, now pay their best or most experienced teachers several times that amount.

To attract more teachers, New Jersey is experimenting with alternatives to the standard-certification route so that college graduates in fields other than education can come aboard. Using audiovisual aids, computers, satellite teaching, team-teaching, and even switching to staggered semesters can cut down the number of teachers required as well.

Moving teachers who have been promoted into management jobs back into classrooms could be one solution to the labor shortage. School systems are notoriously bureaucratic. According to the AFT, from 1975 to 1986 school districts hired one curriculum adviser, program director, or other desk worker for every new classroom teacher. "Before we ask for additional funds, we must reorder our priorities," says Mary Hatwood Futrell, president of the National Education Association (NEA).

How to shrink staff and administrative functions isn't the only thing schools can learn from business. Incentive pay can also help. In Rochester, N.Y., last year, the teachers' union sat down with administrators to bargain for school-based decision-making and pay hikes of more than 40%. The new contract also established a career ladder with a top rung of so-called lead teachers who can earn up to $70,000 per year in the contract's third year. Top pay requires them to accept assignments in the system's toughest schools, now often in the hands of novice teachers. "They'll be the Clint Eastwoods of teaching," says union head Urbanski.

Reaching disadvantaged kids in tough neighborhoods also may require expanding the traditional role of schools—the only stable institutions in some kids' lives. A handful of inner-city schools are trying on-site day care for teenage mothers, after-school hours to increase learning time, and intensive anti-dropout counseling. Arkansas, New York City, California, and Minnesota have started prekindergartens for four-year-olds. "Pedagogic reforms are wasted unless you do something about social-capital building," says Primerica CEO and social activist William S. Woodside.



A RAGING DEBATE *Traditionalists stress the importance of a strong curriculum and high standards. Others want reforms such as peer tutoring and team learning*

PHOTOGRAPHS BY (TOP-BOTTOM) HORAN/PICTURE GROUP, HARRIS/THE STOCK MARKET

Northeastern University economist Andrew Sum argues that an extended school year, which the Japanese have shown benefits middle-class pupils, can do even more for poor kids who, left to home and peer influences, tend to lose ground in summer. California is moving to year-round schools to increase learning time—and to handle a shortage of classroom space.

SCHOOL VOUCHERS. Sar Levitan of George Washington University believes schools must assume even more roles to fill the gap left by working mothers. "I'm not a moralist, I'm only an economist," Levitan says. "If women are going to do society's work, the schools must respond."

One way to make the schools more responsive to the needs of the students is to force them to compete for students. Some 20 years ago economist Milton Friedman, a Nobel prizewinner, proposed issuing vouchers to families for the amount it costs to educate their kids. Parents would select among the schools, "paying" with the vouchers, so schools would have to upgrade or lose funding.

Although no school system has yet issued a Friedman voucher, there is growing support for the idea of parental choice to foster competition, accountability, and parental involvement. The National Governors' Assn. believes that choice within the public schools "can promote equity." Poor kids, claims Heritage Foundation analyst Jeanne Allen, would benefit most, since wealthier families already choose schools by moving to communities with good ones.

In the past, though, choice has sometimes been used to thwart integration. In some places, so-called magnet schools—the best schools in the district—skim off the community's best students, leaving other schools worse off. "You don't improve schools by running away from schools," bristles NEA President Futrell. Minnesota's teachers are suing their state over its new Choose-a-School plan, which lets kids enroll in any public school.

Other experiments are on the way. Boston University is taking on the reorganization of the troubled Chelsea (Mass.) school system. New Jersey has begun a hostile takeover of Jersey City schools, whose performance was close to meltdown. But much of the system still is plagued with inertia and institutional rigidity. If there is to be meaningful reform, adversaries in the education community will have to cede cherished turf and cooperate.

The alternative—bumbling along from crisis to crisis while presiding over decline—is simply not acceptable. Schools are the crucible where children do or don't become productive members of the community. For children growing into citizens—and for a society that wants to prosper—education is just too important to entrust to the status quo.

By Elizabeth Ehrlich in New York

IT'S TIME TO PUT OUR MONEY WHERE OUR FUTURE IS

Investments in education and training will yield sure-fire returns we can't afford to ignore

In the U. S., when you turn 18 or become a citizen, you may register to vote. The process varies from state to state, depending on the requirements of the local board of elections. But one thing is true across the nation: You do not need to be able to read or write. The Voting Rights Act of 1965 and its amendments abolished literacy tests, among other discriminatory local requirements, that had long disenfranchised millions of black and disadvantaged citizens.

Yet today the person who can vote but cannot read and write remains disenfranchised in another, more fundamental, sense. The right to earn a decent wage and make a productive contribution to society can't easily be exercised by the illiterate, the poorly educated, and the unskilled. Disenfranchised, too, is the unemployed steelworker unable to find the job to fit his unneeded skills. Then there's the single mother unable to find affordable day care for her toddler so that she can go to work.

The cold, hard, economic facts make a compelling case for action. The direct costs are clear: Incomes are lost, and unemployment and welfare benefits are paid out. But the overall loss to the economy is bigger still. America's most productive resource, its people, is not being fully utilized.

TIME BOMB. The bean-counters in Washington and state capitals around the country will say there is no money available to invest in educating and training tomorrow's work force. And some economists, such as University of Chicago professor and BUSINESS WEEK columnist Gary S. Becker, whose pioneering work measured the rate of return to investments in human capital, would prefer that market forces eliminate the mismatch between jobs and skills. But labor markets take time to work, and time is of the essence. Already the nation has suffered the consequences in the international marketplace; in the future, fiercer competition, changing demographics, and new technologies will demand that skills keep improving. Ignorance costs far more than knowledge.

In a $4 trillion economy with a $1 trillion federal budget there is surely room for some shifts in spending: away from plant and equipment and toward workers; away from the aged and toward the very young; and even away from guns and toward people. Whoever wins the Presidential election on Nov. 8 should spearhead a new national commitment to America's future by investing in its people. Whatever it takes—new money or a reallocation of resources—the commitment should come through loud and clear. The federal government, state and local governments, business, labor, and the electorate will all have to do their part. What should be done? Here are some suggestions:

■ **Instill the habits of learning and working in kids at an early age.** "Early intervention" by means of preschool programs has shown proven results. Numerous studies demonstrate that the younger the child, the greater the long-run payoff of an investment in that child. Often mothers become in-

volved in these programs as well, and they help to nurture and sustain a learning ethic in their kids.

For every dollar invested in preschool programs such as the government's 23-year-old Head Start program or the Perry Preschool program in Ypsilanti, Mich., more than four times that amount is saved in public assistance, special education, and other costs. Children enrolled in such programs are much more likely to graduate from high school and be employed than children not enrolled in the programs. Some experts urge even earlier intervention, saying help should begin in the womb. Each dollar spent on prenatal care saves $3.38 in the cost of care for low birth-weight babies.

At the moment the government spends about $2.4 billion a year on the care and education of preschoolers. Compare that with a tab of $8.7 billion for one year's spending on space research and technology. Or $38 billion for a single year's worth of military research, development, and testing. Or compare it, even, with spending on the elderly. Since 1980, social programs that benefit children have suffered budget cuts in real terms, while programs benefiting the elderly have grown faster than inflation. Prenatal and preschool programs could reach most eligible participants with annual funding of anywhere from $2 billion to $10 billion, experts estimate. Increases of such magnitude, observes Isabel V. Sawhill, senior fellow at the Urban Institute in Washington, "won't exactly kill us."

■ **Pay teachers more, and perhaps transform the whole teaching process.** First there was reform, now there's restructuring. The process has begun, but more has to be done to enable the nation's schools to prepare students for life and work. This could involve "team" instruction, with highly qualified "lead" teachers, and new ways to teach thinking skills as well as the basics.

While the impetus and financing for these changes must come at the state and local level, the federal government can play an important role as a catalyst for change. The Education Dept. has a mixed record on this score. Its report, *A Nation at Risk*, shook up public school administrators and launched a reform process, but outgoing Education Secretary William J. Bennett has been impatient with results. And the Education Dept. could do more to promote demonstration projects and fund education research—efforts that would help educators improve the schools.

■ **Adopt major new incentives to train and retrain workers.** In a competitive and rapidly changing economy, old skills become outdated and new skills are needed. "Most of us, after the age of 25, change occupations three times and jobs six times," observes Pat Choate, director of TRW Inc.'s Office of Policy Analysis. How to prepare people for those changes? Spread the cost of training through new initiatives. An investment tax credit to businesses for money spent on improving worker skills is one idea. Or a tax credit could be granted to individuals for investments in training and education they make on their own. Another incentive to both employers and workers would be a tax-free individual training account, akin to the individual retirement account, which could be jointly contributed to by workers and businesses. For years, any tax break granted industry has been skewed way in favor of physical investment. These proposals would reverse that bias.

■ **Tailor the workplace to the new labor force.** To retain female workers who have many years' experience, and to enable those workers to be more productive, companies should extend child-care benefits to a far greater extent than they have to date. To keep older workers productive, employers should offer new duties and more flexible hours. And granting workers portable benefits could make them more mobile, and thus more responsive to the fast-changing labor demands of employers.

Too frequently, managers have looked at workers as a cost rather than a resource. And every extra dollar spent on workers was viewed as that much more of a burden, whereas it could be, if wisely spent, a means to empower workers to do better. Hundreds of companies now recognize this to be true with respect to training. Investments in training yield tangible rewards, and accordingly business spends approximately $30 billion a year on training. The rewards of changing the workplace are also large. But a massive cultural adjustment may be necessary to realize them.

There's no doubt that government is in a belt-tightening mood, and business is eager to keep costs under control. But without strong leadership and new spending priorities, America's most precious resource will be neglected. In the words of a familiar advertisement: A mind is a terrible thing to waste.

By Karen Pennar in New York

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, 12

Drawing out the jobless few

Report offers antidotes to labor shortage

By JAMES B. MOORE
Journal staff writer

Washington area businesses and goverment officials should target a supply of 300,000 unemployed residents to attack labor shortages threatening the region's economic prosperity, according to a report from a Washington research group.

Greater emphasis on day-care services, transportation and welfare reform would bring retirees, mothers staying at home with children and unskilled workers to businesses starving for workers, said George Grier, the author of "Special Report: Greater Washington's Labor Shortage."

Released today, the report discusses the origins of and potential solutions to severe labor shortages that are reflected in the Washington area's unemployment rate.That rate, under 3 percent, is less than half the national average.

Although Grier concludes that a number of approaches can be employed to find workers — recruitment of workers from depressed regions is one example — targeting the 300,000 people among the 600,000 not working in the area would be more efficient, Grier said at briefing on the report Friday.

Government and business should focus on the indigenous work force "because that is a relatively low-cost, high-payoff area — if we do it right," said Grier, who estimates that about 300,000 people in the area do not want to work for some reason or are too old or ill to hold jobs.

Like many business people, Grier has concluded that individual businesses by themselves cannot lick the labor shortage problem, which has become acute as the creation of jobs outpaces growth in the supply of workers.

Grier estimates that the Washington area has gained 480,000 jobs since 1980, while the population has grown by 360,000 people. "An astonishing one out of every five jobs that now exist in this area has been created since 1983," according to the report.

That growth has been fueled almost exclusively by private-sector employers, especially high-technology and professional services companies, that have flocked to the Washington area to exploit opportunities created by federal government laboratories and installations, said Grier, a senior associate at the center.

The growth of jobs may decline slightly if budget deficit reduction measures force cutbacks in government funding, but even that development would have little impact on the job situation, said Grier. Only one of five jobs is in the federal government, compared with one in three in 1960, he noted.

The labor shortage has resulted in shortened business hours, canceled sales and increased wages and benefits by employers in competition with each other.

"It is increasingly becoming a factor in basic business decisions — expansion, new locations," said Garry Curtis, manager of the retail bureau of the Greater Washington Board of Trade.

"One of the questions that wouldn't have been asked five years ago is: 'Are there enough workers?' " said Curtis, who has helped develop a successful training program to help the "hard-core unemployed" find jobs in retailing.

The program, put together by retailers and the Washington Private Industry Council, so far has graduated 350 Washington residents, who have gone on to take jobs in department stores and other outlets, Curtis said.

That kind of self-help is the answer, said Grier.

"There have to be public policy changes to provide incentives for these people to work rather than disincentives to work," said Karen Hastie Williams, vice chairman of program and scope at the research center.

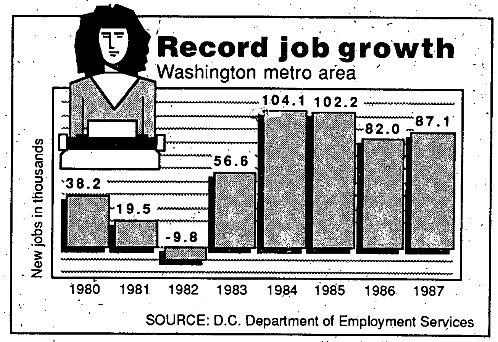
> "There have to be public policy changes to provide incentives for these people to work rather than disincentives to work."
> — Karen Hastie Williams

The alternative to the back-yard approach is greater reliance on employees who commute from West Virginia, Pennsylvania, Baltimore, Western Maryland and Frederick County, which have been supplying Washington and its inner suburbs with workers for some time.

The problem with that, Grier said, is that many of those areas are developing rapidly and soon will be able to offer high-paying jobs without the tradeoff of a long commute, Grier said.

Given the severity of the existing labor shortage and the prospect of fewer out-of-town workers coming in the future, a lack of programs to pull native labor into the job market could threaten the economic boom that created so many jobs in the first place, Grier and Williams said.

"We can nip our own prosperity in the bud that way," he said.



Jennifer McDonald/Journal

This way to the work force

The Grier report recommends that area businesses and governments take several steps to help people reenter the job market and alleviate a labor shortage here.

Among the prescriptions:

■ On-site day-care centers subsidized by business, which might find a large source of workers in the population of mothers who cannot find quality, affordable day care.

■ Expansion of public transportation, especially of feeder buses, to move workers without cars from Metro stations to work sites off the beaten path.

■ Training programs to give workers new skills. The programs should help them "overcome handicaps of appearance, attitude and behavior that can be at least as disabling as physical handicaps."

■ Flexible work schedules that allow the elderly — the fastest-growing part of the population — to take part-time jobs to supplement retirement income.

■ Modifications of welfare policy so recipients do not lose health-care insurance (Medicaid) when they take a job.

BABY BOOMERS
By Paul C. Light.
319 pp. New York:
W. W. Norton & Company. $19.95.

By Andrew Hacker

LISA ADAMS

BETWEEN 1946 and 1964, more than 75 million American infants were born, compared with barely 50 million in the preceding 19 years. This is, of course, the baby boom generation — everyone now aged 24 to 42 — embracing one in every three Americans. The sheer size of this cohort would seem to render generalizations impossible. Is any common ground shared by yuppies and the homeless, or by a Senator Dan Quayle and advocates of gay rights? To these and other questions, Paul C. Light's book provides some provocative answers. "Baby Boomers" builds on the research of social scientists, with special attention to surveys and polls. While the author has conclusions of his own, they are presented in such a way as to encourage the reader to respond. So I am sure he will understand if I accept that invitation.

Mr. Light makes a strong case that this generation differed from its predecessors in many crucial respects. In a pair of chapters called "A Portrait of Separation," he shows how young postwar Americans evolved a culture of their own. The key forces were social affluence and parental uncertainty. The 1950's and 1960's were a period of prosperity, in which most citizens shared. New comforts and experiences stirred feelings of self-importance, especially in young people, who felt entitled to define their lives without adult intervention. Out of this ambiance came the sexual revolution, the civil rights movement and protests against the Vietnam War. Increasingly, parents became passive bystanders, Mr. Light says. The trek to the suburbs left older rules behind; no one was really sure how to go about being a parent. Hence, the reliance on Dr. Spock and other paperback authorities. Lacking confidence, parents consulted their children, inquiring "O.K.?" of toddlers still in diapers. Raised in this atmosphere, youngsters found it easy to pass judgment on their elders.

Thus, the decade we call "the Sixties" shaped the sensibilities of the baby boom, Mr. Light argues. That period actually began in 1963, a year that saw the assassination of President Kennedy, the march on Washington and the publication of "The Feminine Mystique" by Betty Friedan. In that year, also, the first phalanx of the baby boom entered senior year of high school, with a greater number than ever of graduates destined for college. Before receiving their college degrees, some would have participated in protests at Kent State and Jackson State or the free speech movement at Berkeley. Others would take to the streets of Newark and Watts or have their heads pummeled by the police in Chicago. As Mr. Light notes, this is not to say that most became radicals in specific political terms. What the 1960's did was to undercut traditional bulwarks of authority, ranging from the family and religion to the economic system.

And then there was the size of this youthful contingent, producing, as Mr. Light puts it, "a degree of social crowding unknown to previous generations." At first reading, this makes sense: if families were having half again as many children, space would get a bit tight. Some schools started double sessions; others added more pupils to each class. Yet much of the growth was in the suburbs, which were building larger schools with more space and amenities. Indeed, in many suburban homes, children were likely to have a room of their own. Nor is it clear that those in the baby boom enjoyed fewer opportunities to advance. If anything, the postwar years have seen a rise in professional and managerial positions as a proportion of the work force. It is this kind of development that Mr. Light often neglects.

According to "Baby Boomers," another drawback of larger families is that the population will contain a smaller proportion of firstborn offspring. Mr. Light cites demographers who note the prominence of firstborns among Nobel laureates, National Merit scholars and entrants in "Who's Who." The idea is that the eldest get the most attention, partly because they are the first and for a while, at least, they have no competition. Mr. Light agrees, suggesting that the increase in the number of siblings should be blamed for the drop in Scholastic Aptitude Test scores and similar indexes of academic achievement. As a teacher who taught the baby boom

Continued on next page

Andrew Hacker teaches political science at Queens College. He is currently writing a book on race and ...s in American life.

13

The Counterrevolution

Continued from preceding page

group, I do not find this theory persuasive. Tests like the S.A.T. measure the modes of learning and reasoning that prevailed in the past, including not only specific technical skills but also a willingness to pick out the correct answers adult examiners have chosen. What lowered the scores was not too many siblings but television and rock music, plus the propensity of young people to employ a vocabulary and logic of their own. (I am prepared to argue that the recent rise in the scores is due entirely to coaching courses.)

Mr. Light remarks on how frequently members of the baby boom have been reduced to stereotypes: "hippies in the 1960s, yuppies in the 1980s." Yet, despite apparent disparities between these decades, he concludes that they "share considerable common ground." This is undoubtedly true, but the argument needs sharpening. In many subtle ways, the 1980's wear the imprint of the 1960's; the earlier era has not disappeared but simply has gone underground. Yuppies may prefer creature comforts and seek corporate careers. Yet few show a personal commitment to capitalism; most tend to be cynical about politics, which they see as tediously middle-aged. (At least half stay at home on a typical election day.) Nor should we forget that half of the yuppies are women, offspring of Ms. Friedan's revolution. Even if many women are ambiguous about their goals, they feel fully equal to men and are increasingly critical of male attitudes and conduct.

"Baby Boomers" relies heavily on the responses of young people to opinion polls. According to one survey, we are told, those in the generation show "near-unanimous support for continued research into genetic engineering, robotics, organ transplants, and so forth." I'm not so sure. Polls, like multiple-choice tests, present preset alternatives that cannot plumb basic sentiments. Virtually all the baby boom students I have taught are uneasy about the current thrusts of research, not only for military purposes but also in medicine and agriculture and, of course, nuclear energy. If young people have a politics, it is more green than left or right. I am sure that Mr. Light, a Washington political consultant, has a close acquaintance with many men and women in the 24-to-42 age range. Yet, curiously, about the only time we hear them speaking their minds is in quotations he has culled from newspaper articles.

• • •

Even so, I share his view that the "baby boomers appear to retain much of their commitment to finding a meaningful philosophy of life." Still, this outlook must be squared with a strong concern for self. While the "me generation" may be too harsh an epithet, the entire baby boom group has not had an easy time with relationships and responsibilities. Its coming-of-age coincided with the rise in drug use and violent crime, in marital breakups and out-of-wedlock births. If some of the postwar generation show a growing reliance on abortion, others harbor punitive attitudes toward what they regard as permissive sex. And if there has, indeed, been an erosion in the American consensus, the baby boom cohort has played a major part in that process. But in the end, its size never became a social problem; the country could absorb not only everyone born within our shores, but millions of immigrants as well. What "Baby Boomers" is really about is the postwar generation, a new breed of Americans who are making us a new kind of nation. □

Beyond the Beltway

How did Paul C. Light set out to tackle a subject as vast and complex as the 75-million-member baby boom generation?

"Basically, I just started reading," Mr. Light recalled in a recent telephone interview from his office on Capitol Hill, where he is a special adviser to the Senate Governmental Affairs Committee.

The product of all that reading, "Baby Boomers," is not the book he expected, Mr. Light said. "When I started doing the research for it, I thought I'd be coming out with a singular view of the baby boom. . . . But the more research I did, the more cautious I became of characterizing the generation as a singular entity. So the book is much more about the diversity within the baby boom and some of the shared economic and social problems that baby boomers confront from the sheer size of the generation."

Mr. Light, who is 35 and has written three previous books and held consulting jobs in Washington and teaching positions at several universities, intends to leave the Senate at the end of the current session to become associate dean and professor at the University of Minnesota's Hubert H. Humphrey Institute of Public Affairs. "It's kind of a bittersweet thing," he said, "because I like being in Washington. But it is a very intense city, and sometimes you just need to get outside the Beltway for a while."

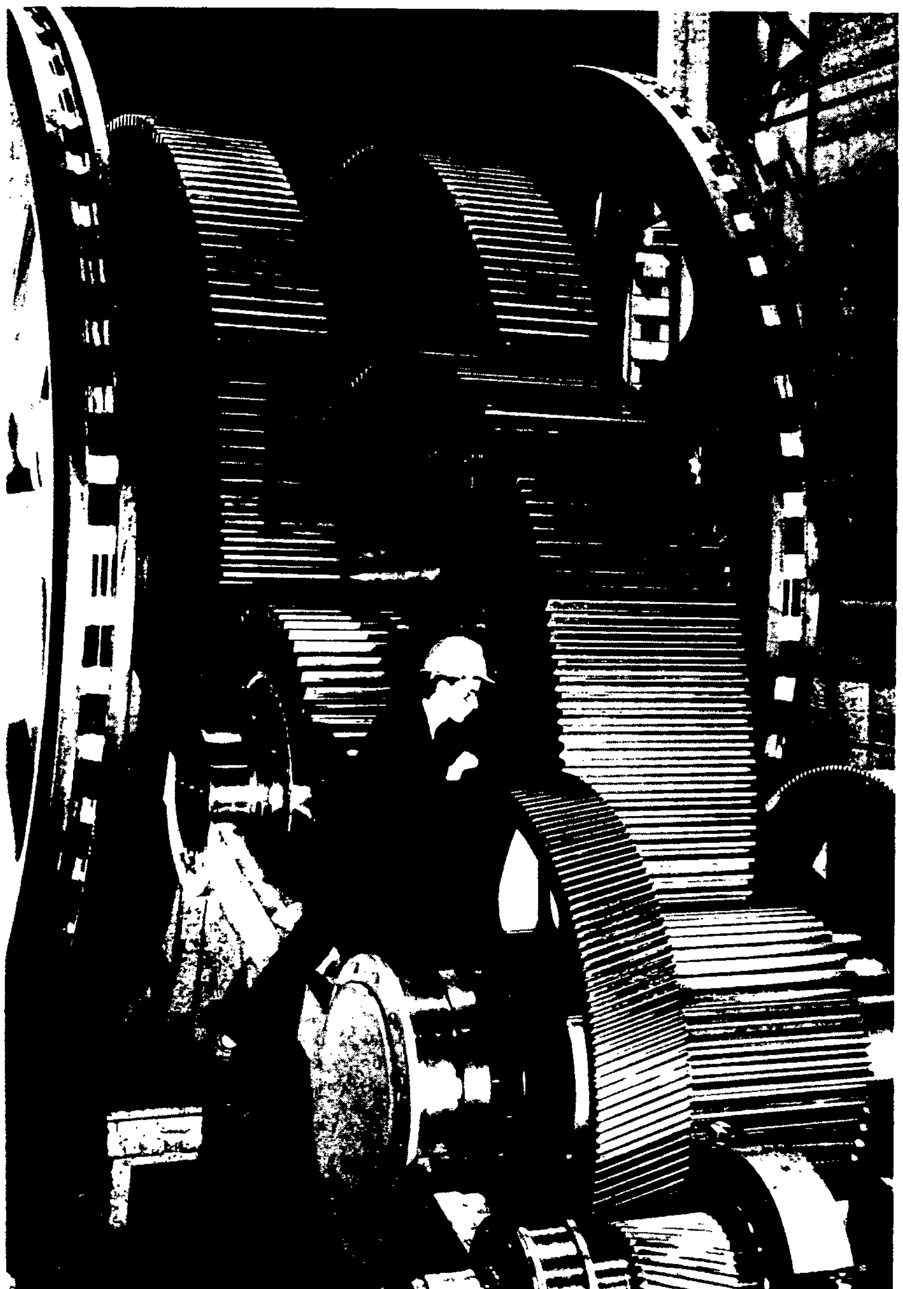
MICHAEL FREITAG

14

Sar A. Levitan

Beyond "Trendy" Forecasts

The Next 10 Years for Work



"Trendy" forecasts of the American workplace for the next 10 years see radical changes — some good and some bad. But the American workplace is very slow to change, cautions a research professor of economics.

Will there be radical changes in the American workplace by 1997? Perhaps. It is a tribute to the richness of statistics published by U.S. government agencies, and the masses of data spewed out from private computers, that enterprising researchers can find evidence for all sorts of propositions by using data selectively. Before we turn to the crystal ball to fathom what is in store for American workers and labor markets a decade hence, let us first examine some trendy ideas that are currently receiving attention.

Four Trendy Forecasts

To achieve some balance in a review of misconceptions that dominate current labor-market analysis, I will select two predictions of gloom and doom and two that are full of promise and hope — for those who believe in the tooth fairy.

1. The Declining Middle.

One trendy idea holds that America is facing a polarization of society through the erosion of the middle class. According to this argument, foreign imports and changes resulting from new technology are causing sharp reductions in middle-management ranks as well as a shift from well-paid manufacturing to low-paid service employment. The conclusion is that an increasing proportion of workers is concentrated at the extremes of the earning-distribution curve. The facts are that even in

Modern Times revisited? Inspector checks automated gearbox. Automation will certainly affect the future workplace, but *how* has been the subject of "trendy" myths.

LONDON PICTURES SERVICE

manufacturing — where most of the fat was supposed to have been cut — executive, administrative, and managerial positions rose by 15% between 1983 and 1986. This is almost three times the growth rate of total manufacturing employment.

Prognostications about the middle class have come full circle over the past 30 years. For example, three decades ago, *Fortune* magazine pronounced that the United States was undergoing a revolution. Groups "hitherto identified as proletarians" were rushing into the "huge new monied middle-income class." In 1983, *Fortune* reported that the revolution had ended and that the middle class "is gradually being pulled apart [as] economic forces are propelling one family after another toward the high or low end of the income spectrum."

SEVEN-UP

Marketing manager goes over map for distribution of his product. Despite gloomy projections for the future of middle-level occupations, jobs for managers, executives, and administrators are growing at almost twice the rate of total employment, says author Levitan.

A more realistic and careful investigation would have shown that relatively few "proletarians" were joining the middle class in the 1950s. Similarly, we're likely to find that the more-recent gloomy prediction of the erosion of the middle class is no more accurate. Depending on the statistical series used, an analysis of the data during the past 10 or 15 years leads to diametrically contrary conclusions.

Government data on the earning distribution of year-round full-time employees — where middle-income workers are concentrated — show that since 1970 the share of the earnings of the top third has declined while the share of the bottom and middle earners (the middle class) has actually risen.

On the other hand, an analysis of family income shows that the share of the bottom and middle thirds has declined while that of the top has risen. But adding the variable of family size would lead to a different conclusion. On a per capita basis, the income of the middle third has remained stable. In addition, the role of the tax collector should not be ignored. The share of the middle third after taxes increased, while that of the bottom third also rose, and the top third declined.

There is no solid evidence that the middle class is shrinking. The Census Bureau has consistently found remarkable stability in income distribution despite the profound changes that have taken place in the economy and the labor force since World War II. There appears to be little reason to believe that middle America is about to become an extinct or even an endangered species.

Another gloomy prediction suggests that not only is the middle class eroding, but there will be no work for an increasingly large proportion of all persons seeking work. There is nothing new about the prediction that labor will become less important as new technology replaces human labor with machines — this prediction has been heard repeatedly since the beginning of the industrial age. It can be asserted with some confidence, however, that this forecast is no more true today than it was a century ago. On the contrary, the overall employment-to-population ratio is now at a historical high.

Computers and robots are definitely here, but it does not follow that the future belongs to them. Robots may be getting smarter and cheaper, but they are hardly likely to replace humans at work in the foreseeable future. Computers may spit out loads of data, but humans are needed to make judgments about the data retrieved from the computers.

Granting that the workplace is changing at an accelerated rate and that computer technology is becoming increasingly sophisticated, changes in the workplace will still be painfully slow and evolutionary in nature. As computer-driven machinery is introduced to ensure more-stringent quality controls, the factory and the office will become increasingly capital-intensive; the replacement of existing technology will be slow due to the cost of the newer equipment.

We should expect, therefore, that the workplace a decade hence is not going to be much different from what it is today. Even if the 15,000 robots in operation today increased by twentyfold in the next decade, their work will be confined primarily to repetitive and hazardous work now being done by humans and will replace only a tiny fraction of the estimated 131 million people in the labor force by 1997. For every "working" robot, there will still be more than 400 people in the labor force.

Now to turn to two more-hopeful notions. One fashionable idea is that government regulation has stymied productivity growth. Pre-

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sumably, if government ceased to interfere with free markets, productivity would take off again and return to the levels the economy enjoyed in the 1950s and early 1960s.

There is no question that government regulations have reduced measured productivity growth. Achieving clean air, clear water, and safety in the workplace has its costs. However, even if we ignore the benefits to society, the best available estimates about the impact of regulations upon productivity suggest that, at most, measured productivity has declined by a fraction of 1% as a result of governmental regulations.

During the Carter and Reagan administrations, much governmental intervention has been reduced, but, so far, productivity has not responded to these changes. Indeed, productivity growth during the past four years has been below that of other post-recessionary recoveries since World War II. In 1986, the fourth year of recovery from the 1981-1982 recession, there was even less room for optimism — productivity per work hour increased by less than 1%. We must conclude that governmental intervention in the free market, whatever its merits or faults, has hardly been the culprit for the declining growth in productivity during the past decade.

4. Labor–Management Cooperation

Another trendy idea is that the United States is about to enter a new era of labor–management harmony. As a response to foreign competition and threatening trade deficits, the concept of labor-and-management cooperation in the national interest is certainly appealing. It is reminiscent of Benjamin Franklin's warning: "We must indeed all hang together, or most assuredly we shall hang separately." Unfortunately, clarion calls alone do not resolve the age-old conflicts between labor and management.

One popular suggestion to iron out labor–management differences is the establishment of quality-of-worklife programs. Advocates have also placed much reliance on the increasing prominence of quality circles. But it is not clear who is going to run circles around whom.

While paying lip service to cooperation, American management has often tried to undermine employee efforts to organize — the essential ingredient in giving employees a meaningful voice in the workplace. A few companies have established grievance procedures, which allow employees to air concerns. In most cases, however, management preaches worker cooperation but ignores workers' priorities if they conflict with immediate profit-maximization efforts. Employees are encouraged to participate in corporate decision making only if it does not infringe on management prerogatives. Such efforts differ little from traditional management attempts to secure the voluntary cooperation of workers and to encourage identification with management goals.

There are persuasive reasons to encourage participative-management techniques. By increasing worker involvement, management can tap new ideas and enhance employee dignity. But the hope that purely cosmetic changes will radically alter the work environment or transform labor–management relations is likely to result in frustration. The traditional adversarial relationship between labor and management is, for better or worse, resistant to change.

A View of 1997

The rejection of the trendy ideas suggests that we should not expect radical changes in the workplace by 1997. Accurately forecasting overall labor-force demand and supply a decade hence is not as speculative as it might appear. About five of every six persons who will be in the labor force in 1997 are already working or looking for jobs.

~~On the~~ demand side, if history is any guide for the future, the American economy will experience at least two business cycles within the next decade. Of course, we all hope that future recessions will be milder and shorter than the last one. But hope is not a prediction. Unprecedented federal-budget deficits, the disturbing trade imbalance, and the uncertain state of recently deregulated financial institutions all require action and wisdom on the part of policy makers if the United States is to avoid other deep recessions.

Given these assumptions, loose labor markets may be in the offing for the balance of this decade. The supply-side economics championed by President Reagan has not yet had any perceptible impact upon savings. Because of large deficits, the federal government will be forced to compete more vigorously with business for the limited available capital. This will slow down private investment and job expansion.

Labor Supply Will Grow

The supply of labor during the next decade will continue to increase despite reduced birthrates in the 1960s and 1970s. While the total supply of teenagers will decline, it is probable that the labor-force-participation rate of young people will increase, either because they will not be able to pay for higher education or because the attractions of further education will diminish. Cutbacks in federal support for youth attending college may discourage some from enroll-

KELLY SERVICES

New secretary is trained on word-processing equipment. Many of the basic skills of secretaries, such as typing, will be little changed by new technology. The secretary's ability to plan and organize will retain its value in the workplace of 10 years hence.

ing, particularly as the cost of a college education — whether public or private — continues to rise more rapidly than inflation.

At the other end of the age spectrum, it is likely that older employees will stay in the work force longer and that early retirement will become increasingly unattainable. The federal government is already taxing the Social Security benefits of more-affluent retirees. As Congress continues to look for revenue enhancement, it may tax all Social Security benefits. Full indexing of Social Security benefits may also be ended, as it has been for retired federal employees. The high cost of pensions and retiree benefits will induce employers to discourage early retirement. The federal government is already trying to do that for its employees.

There is every reason to believe that women will continue to flock into the labor market, although not necessarily at the rate experienced during the past decade. Women continue to acquire more education, postponing marriage and children, to prepare themselves for lifetime careers. While the divorce rate has stabilized, at below five per thousand population, the number of female-headed families continues to rise. In 1985, households headed by women accounted for one of every five families with children under 18 — nearly double the proportion in 1970. And for married couples, the wife's earnings are increasingly important to continued financial well-being. In light of these circumstances, few women are likely to withdraw from the labor market for more than short periods of time.

Even if the labor-force participation of the native population does not rise as anticipated, immigration may continue to swell the supply of labor in the United States, since the United States offers extremely attractive opportunities to immigrants. Even as the new immigration law goes into effect, farmers are successfully fighting restrictions on Mexican laborers, and other employers are likely to attain similar results if labor shortages develop. Moreover, international events may mean that the United States will have to accept additional political refugees.

Changing Nature of Work

The overall supply and demand of labor will change slowly, as will the occupational composition of the labor force. New technology will generate both mundane, low-paying jobs and sophisticated, high-paying jobs, just as mechanization and automation have done in the past. The Bureau of Labor Statistics has estimated that, by 1995, for every computer specialist, operator, or technician added to the work force there will be three additional unskilled laborers, three salesworkers, and seven clerical workers.

No doubt the content of many jobs will change. But these changes will not substantially alter the basic skills required for work. The most widely held occupation in the American economy is that of secretary and office clerk. Today, there are some 7 million individuals performing these duties.

Despite the introduction of new office equipment over the past century, intrinsic secretarial skills have changed very little since the typewriter was introduced. Whether secretaries operate a manual typewriter or a word processor, carbon paper or a photo-offsetting machine, the skills necessary to perform the job remain essentially the same: an ability to type and to spell correctly. But the work of the secretary does not end, obviously, with the ability to type, and the many other administrative and related tasks that

"Even if changes in the workplace are accelerating, as some observers suggest, a decade is too short a period for radical changes."

secretaries perform will persist. Technology may have changed *how* the secretary works, but there is little prospect that the secretary's administrative and planning duties will change in the foreseeable future.

In sum, the evidence seems overwhelming that in the next decade the economy is not going to generate an extraordinary demand for new skills. Computer technology may appear to us — the first generation of observers and participants — as a promising (or threatening) revolutionary transformation of work and society. It does not follow, however, that users will have to be familiar with the mysteries of computer technology. We all know how to operate a telephone, but very few of us fathom the technology that makes it work.

Whatever wonders computer technology may spawn, the production managers will simplify work. Just a decade ago, few people could locate the "on" switch of an IBM PC. Today, "user friendly" computers require only marginal changes in skill requirements.

Adjustments to Change

While the nature of work has evolved only gradually, the character of the labor force has changed at a much faster rate. These changes — all too often missed by the forecasters of trendy ideas — will require adjustments in the treatment of employees and in labor–management relations.

The most significant development has been the rise in educational attainment of American workers. In 1940, the median American worker acquired slightly more than a grade-school education. Today, more than half of all workers have a smattering of college, and three of every four new employees in American industry are high-school graduates.

The changing structure of the family has also had a major impact on the workplace. Most American families no longer depend on the earnings of one breadwinner because married women with spouses present — to use the government statisticians' phrase — are now in the work force. The proportion of two-earner households is likely to increase during the next decade. With fewer mouths to feed — because of anticipated low fertility rates, together with postponed marriage and childbearing — American families should experience continuous boosts in discretionary income.

Higher educational attainment and greater affluence among employees will call for greater sensitivity and attention by management to the concerns of their workers. So far, there has been a great deal of rhetoric but, with few exceptions, no overall change in labor–management relations. Questions about the optimal amount of delegation of authority and control have been debated at least since Jethro advised Moses on the organization of his chain of command. The latest pronouncements by management and their consultants have not shed much light on the subject.

No Radical Changes

The twentieth century has experienced a significant cumulative transformation in the workplace, and changes are likely to continue in the next decade. But even if changes in the workplace are accelerating, as some observers suggest, a decade is too short a period for radical changes. Managers and workers in the labor market will continue to face the same problems.

Given present technology, it is easy to envision cataclysmic changes within a short period, but vast capital expenditures would be necessary to radically transform the workplace. Because the populace is unlikely to drastically reduce its demand for government services, government responsibilities will not decline in the years ahead. A rising share of the gross national product will be needed for defense and to support social programs. To pay for these outlays, the government will continue to tax and borrow. This will reduce the share of the GNP available to savings and investment and limit capital available for investment in new technology. The capital necessary to fuel a short-term restructuring of the economy is not likely to materialize.

We should not expect, therefore, any radical changes in the workplace. The robots may take over some of the more unpleasant and repetitive work, and computers may perform some jobs now performed by humans. People will, however, continue to work not only for the pay, but for many other reasons.

Most of us are destined to be neither poets nor philosophers, and we get our satisfaction in life by creating things or performing services. As Sigmund Freud said, "Man's work gives him a secure place in a portion of reality in the human community."

About the Author

Sar A. Levitan is a research professor of economics and is director of the Center for Social Policy Studies at The George Washington University, 1730 K Street, N.W., Suite 701, Washington, D.C. 20006. He chaired the National Commission on Employment and Unemployment Statistics and has acted as a consultant to several governmental agencies and private organizations. His latest book is *Protecting American Workers: An Assessment of Government Programs.*